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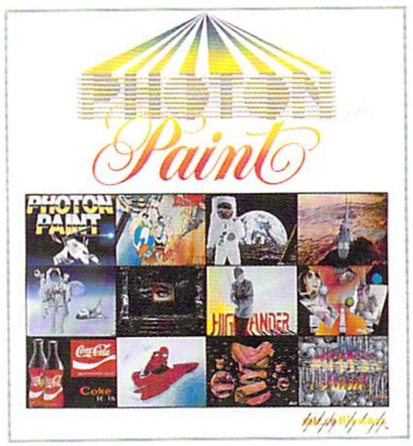

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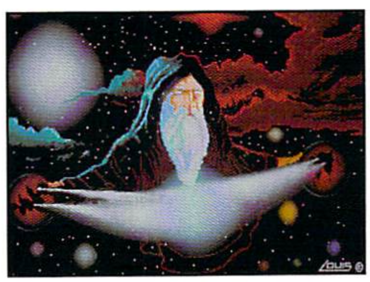

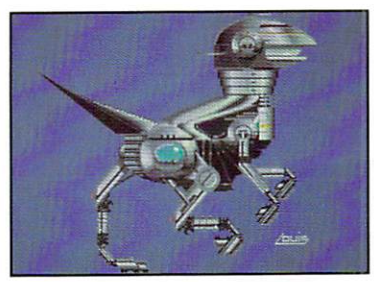

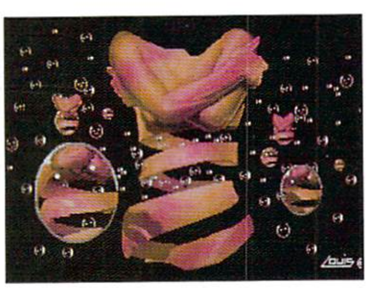

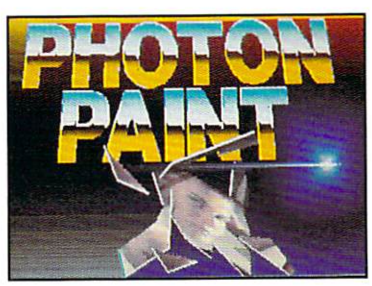

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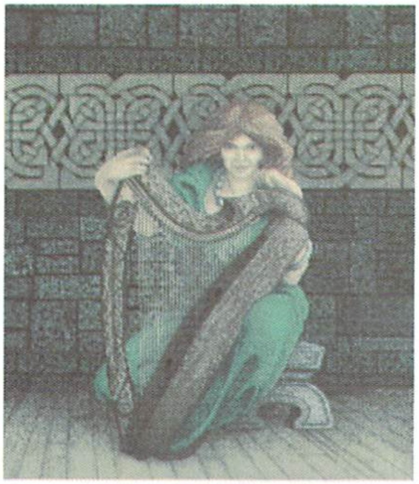

As the famous Rodgers and Hammerstein song says, June is bustin' out all over . . . with music for your Amiga. Our June issue tells you how to do it, what it is you need, who makes it, and where to find it when it comes to turning your Amiga into a music-making machine. And just for an extra touch of versatility, our music cover (above) demonstrates that the Amiga is adept at other arts in addition to music. The harpist depicted there, with the other-worldly look of some figure from Celtic mythology, was created on the Amiga by artist Bradley W. Schenck. After 12 years' experience in graphics and fine art with traditional media, Brad discovered last summer that there was indeed a personal computer capable of creating quality art—the Amiga, of course. Currently he is exploring the possibilities of software illustration and animation. Also, by the way, he builds acoustic musical instruments similar to the 17th century Irish harp on the cover.

COVER BY BRADLEY W. SCHENCK

FEATURES

ARTICLES

COLUMNS

DEPARTMENTS

COMING ATTRACTIONS
Win an Amiga 2000 and a getaway weekend! *AmigaWorld*'s Summer '88 Treasure Hunt begins next month. For a preview see page 69.

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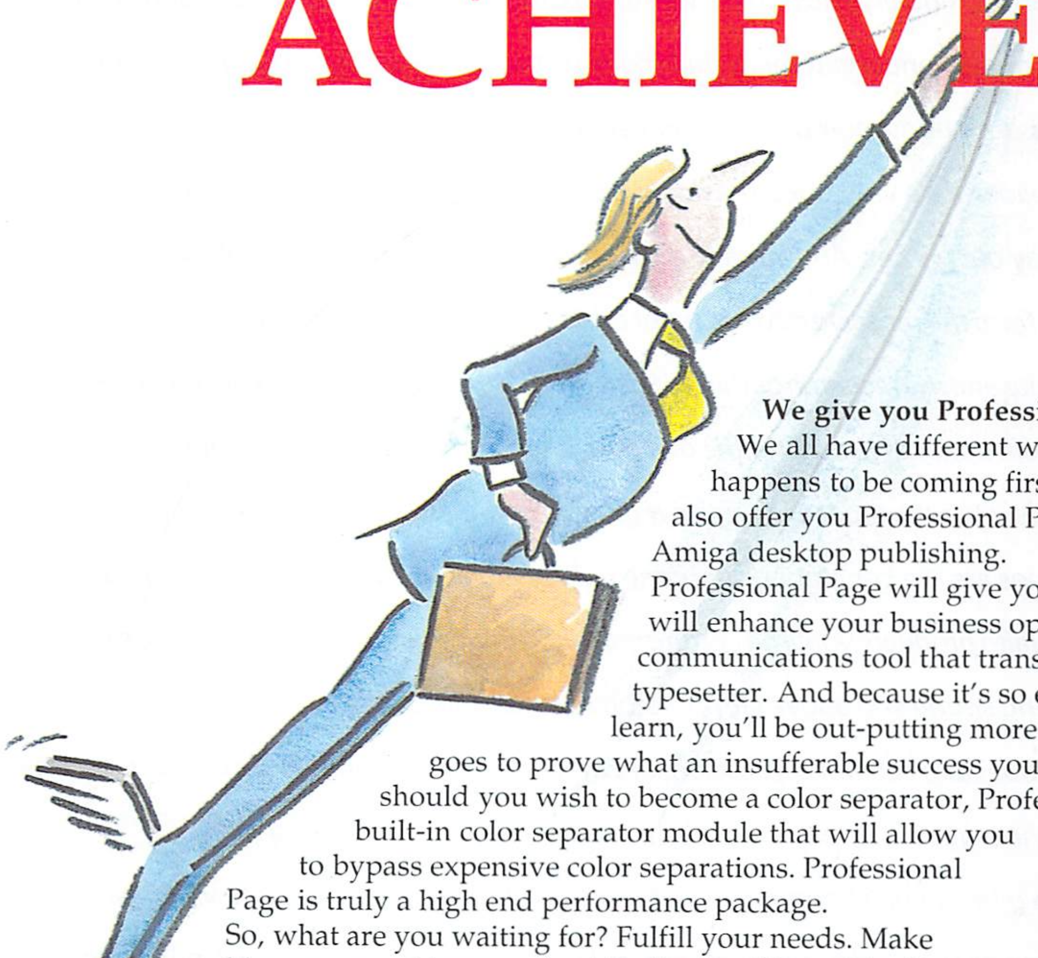

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ZEITGEIST

For what it's worth.

MY CONSCIENCE IS bothering me. I think this page ought to be informative somehow. There ought to be something of value here, not just one person's opinion. But then again, this is the only place in the magazine where I can talk about things that don't fit in anywhere else. Where I can blow off steam or touch on controversial subjects.

Yes, it is tempting to take advantage of this forum. To try to sway thousands of people toward my way of thinking about life these days. What inspiring or controversial subjects can I touch upon this month? Politics? Drugs? AIDS? Aliens? Religion? I don't think so. Not in a computer magazine. (Not this month anyway.) You read computer magazines to get away from everyday annoyances and the bombardment of bothersome, nerve-fraying news. Besides, I'm not sure the world would be better off if more people thought like I do on these subjects. (More confused, irreverent, sceptical, sarcastic, and absurd perhaps, but better?)

I could just stick to the controversial issues that involve the Amiga directly.

Copy protection: Here is my simple two-part solution. Developers, don't copy protect software. Users, don't steal software. I know, you are all kicking yourselves for not thinking of this yourselves. No need to thank me. Just part of my job.

Commodore's marketing: Those wacky executives at Commodore. I chuckle every time I think about them. I'll bet you never would have guessed they were in the computer business if they didn't have their name on the Amiga box.

Hard-disk prices: Come on fellas, give us a break. If a 20-meg drive for a PC costs $300, why does the exact same drive (made by the same company) cost $1000 for the Amiga?

Ray tracing: Great stuff. You can either buy a 68020 with a 68881 and a lot of expensive 32-bit RAM chips, or you can wait a day and a half for each picture.

Color printers: The Okimate 20 is great for the price, but hardly does justice to an Amiga screen, and most of us don't have enough money to bop out and buy an ink-jet printer. Isn't there some middle ground? Can't someone develop a decent color printer for less than $1000? Less than $500? Please?

The Amiga's speech capabilities: Developers spend lots of time and money on fancy graphics for their software, but then it seems like they toss off the speech routines in an hour or two. The speech in a piece of software should be as polished as the rest of the program. Developers should take advantage of the Amiga's sound capabilities. Don't just plug words into the TRANSLATE and SAY routines.

International Amiga affairs: In Europe and Australia, the price of software and hardware is absurd, the shipping times are absurd, and sometimes support is non-existent. U.S. manufacturers should be more considerate of Amiga owners overseas. Big software houses in the U.K., Germany, and elsewhere are beginning to make some impressive strides in the U.S., and a number of U.S. companies are trying to break into the international markets, but there are problems. There isn't just one distributor for the U.S. or the world. Each country has different laws about manufacturing and selling computer-related stuff. So it's hard for manufacturers to get established.

What is my solution? Well, *AmigaWorld* is going to bring you (no matter what country you live in) more news and new product information from all over the world. This should have a long-term effect. We will tell you about a hot new product. People from all over the world will start sending away for information or start placing orders, and soon the manufacturer will decide that it might be worthwhile to ship the product to where the demand is. The result: more Amiga hardware and software for everyone. At least that's the idea.

So all you international developers should send me press releases, review copies, news and invitations, even if you don't currently ship to the U.S. or any other country. We have readers in places like Argentina, Sri Lanka (greetings Arthur and Hal), Singapore, and The Antilles, as well as more "mainstream" countries like Italy, Japan, Germany, England, France, New Jersey, and others.

Our international Amiga coverage is just beginning. In this month's Notepad, we have a report from The Hanover Fair and news from Commodore Germany. Next, we'll travel to that exotic land of madness and monuments known as Washington, D.C. There, me and my faithful guide Bob "Bring-'em-Back-and-Benchmark-'em" Ryan, will be stalking the elusive and always dangerous Amiga developer. There is rumored to be a semi-annual migration, or gathering, of these creatures, known as the Amiga Developer's Conference. Lots of cavorting at the watering holes, locking horns in ritual battle, and exotic dances around the issues. It should be a fascinating safari. After that, who knows—perhaps Australia, Antarctica, or even Atlanta.

Meanwhile, this is a good issue.

That's my opinion, anyway. . . for what it's worth.

Guy Wright

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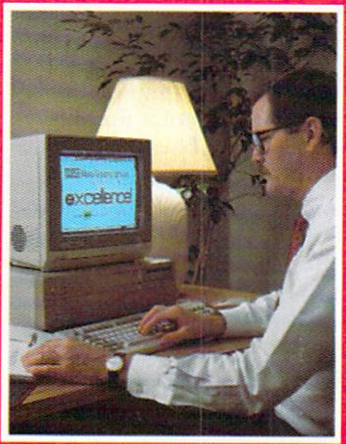

Micro-Systems Software is committed to a higher standard of excellence. And we're ready to prove it! Our newest Amiga product is a full-featured word processor that exemplifies our commitment to the Amiga. And to you. We have appropriately named it excellence! for obvious reasons. First of all, users of our popular word processor Scribble! told us about the features they wanted in a full-featured word processor. So we compiled their suggestions and designed excellence!, a program that sets new standards for word processing. And more importantly, excellence! has been developed specifically for the Amiga, on the Amiga. It takes advantage of the user-friendly Amiga interface and is designed to be intuitive in a way no other word processor can match. An important point: several companies, new to the Amiga market, want you to think their track record with other computer systems makes them instant experts with your Amiga. That just isn't so. Micro-Systems Software is one of the pioneer developers of productivity software exclusively for the Amiga! *We know your Amiga inside out.* So, features you once thought to be luxuries, you can now consider basics. Excellence! has all the powerful features required of a modern word processor, in a package sophisticated enough to use in desktop publishing.

There are always minor differences between programs designed for the same application. *Before* you make your choice, consider these major differences between excellence! and several well-known word processing programs! Excellence! processes words perfectly and does it faster than any other WYSIWYG word processing program available, giving the text-only programs a race for their money! (Not all programs claiming to be WYSIWYG really are. Excellence! shows you *everything*, including super- and sub-scripts, headers, footers, footnotes, colors, and graphics!) Excellence! has all of the standard features too, including: mail merge, full clipboard support, full text styling, multiple methods of movement within documents, search and replace, and printer control! Excellence! has a dramatic collection of features that place it at the forefront of a new generation of full-featured word processsors. Its innovations include: full color support of text, inclusion of IFF graphic images, spelling check as you type, basic math capabilities within documents, multiple column support, proportional font support, Index generator, Table of Contents generator, integrated Thesaurus, integrated Grammatical and Style checker, and PostScript output!

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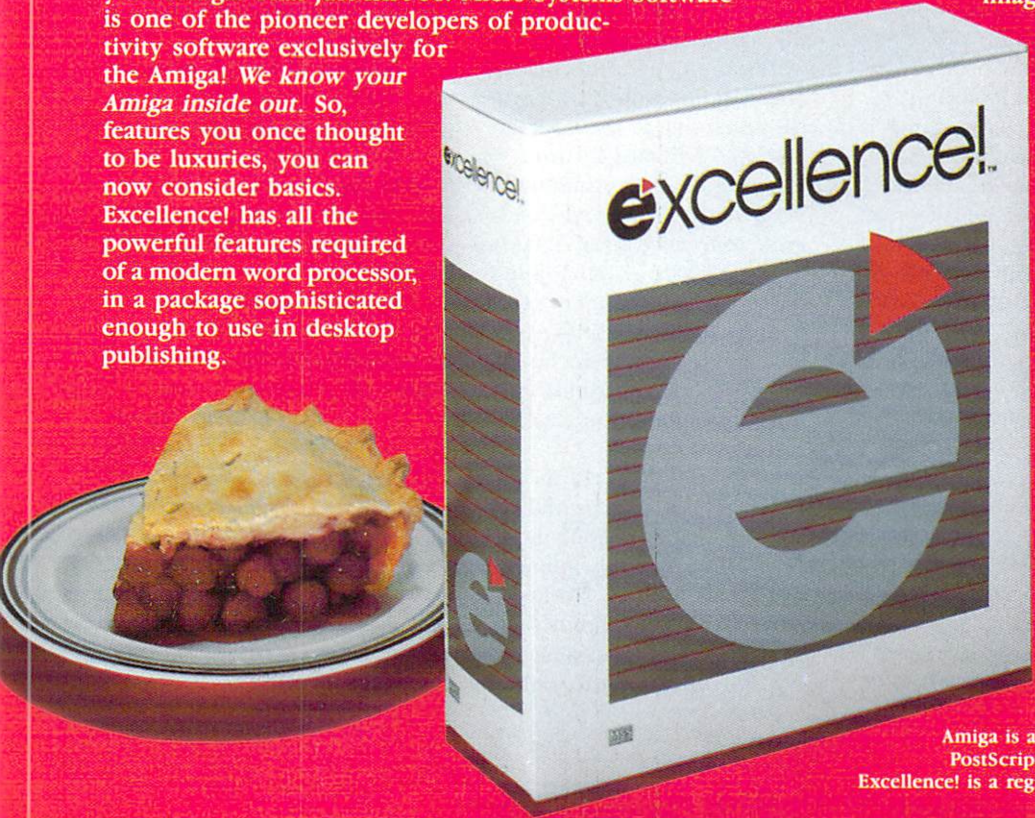

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REPARTEE

Comments, complaints, and concerns from

AmigaWorld *readers.*

NOTES FROM THE WIRE WARS

THREE CHEERS FOR Mr. Wright's comments about telecommunications in April's Zeitgeist. Telecommunications is the biggest rip-off since the invention of the Electoral College. Both should be abolished.

Lee Opdenbrouw
Santa Rosa, CA

I JUST READ your Zeitgeist column in the April issue (p. 6) concerning telecommunications and I agree with you one hundred percent. After all the searching through the BBSs and the CompuServes, what have you got? Not much! Except a high telephone bill and on-line charges that are not commensurate with the end result.

I cannot understand who supports all these bulletin boards. I have bought umpteen books on how to use the boards, but I still don't get anything out of them.

I have three telecommunications programs: OnLine!, Diga, and AmigaTerm. OnLine! is the only one that is relatively easy to use. Diga, despite its fancy displays, is impossible to cope with, and its manual is incomprehensible. As for AmigaTerm, just don't bother.

I am really happy to hear someone besides myself complain about the quality of programs, documents, and manuals. It is about time someone voiced his opinion. After all, we are not all hackers or even semi-pros. All we want to do is use a computer for what it was intended—the quick, efficient, and accurate compilation of information—without the hassle.

J. S. Ridinger, Jr.
South Orleans, MA

I ABSOLUTELY LOVED your April Zeitgeist column. If telecommunications gets too much for you, I recommend you fetch a copy of SubLogic's Flight Simulator and fly away from it all.

Charles Gulick
Lake Park, FL

THANKS FOR THE April Zeitgeist column. We've had a nice modem for nearly two years. We used it (sort of) for a month and a half and then gave up in frustration. All it does now is make our hardware setup look a little more impressive. Yes, the idea of telecommunications is wonderful, but when will it really become "friendly"?

Bojan Spassoff, Director
School of Pennsylvania, Ballet
Philadelphia, PA

VIDEO ERRATUM

REGARDING THE SIDEBAR to the desktop-video article ("NTSC Video Made 'Easy'," *AmigaWorld*, March '88, p. 25), while the article is basically correct, the accompanying diagram is not. The part labeled "front porch" is actually the "back porch," and the part labeled "back porch" is actually the "sync tip."

George H. Livingston, President
Channel One Video Tape Inc.
Miami, FL

Thanks for the correction. Several other video buffs also noticed the error.

—Editors

TURBOCHARGING TROUBLES

HERE AT WEATHERCONNECT, Inc., we have a dire need for a 68020 CPU inside the A2000 for part of our workstation environment, and after reading Bob Ryan's article pertaining to the CSA 68020 CPU Board ("Turbocharging Your Amiga 2000," *AmigaWorld*, Feb. '88, p. 26), I grew concerned. Our A2000's have a B2000 rev. 4.3 adjustment. We ordered the CSA boards, and as you may have guessed, the CSA board did not work with some other common peripherals inside.

We cautiously performed the infamous "cut a trace and reroute a jumper" B2000 motherboard hack as recommended by CSA's Bill Reed. No luck! Afterwards, we were instructed to cut a jumper and remove two PAL chips on the CSA board in order to make it work. This did not work. Finally, several days later, we sent the board back to CSA, and it came back working fine.

The support from CSA was adequate. However, I don't feel that it is fair for CSA to request its customers to make modifications on the A2000 motherboard. It's a delicate procedure, and it took us about half an hour to do. When I asked CSA why their boards did not work the first time, they pointed the finger at Commodore, claiming that CBM was "trying to cheapen the motherboard by removing terminator packs. . . ." This is too bad. As Bob Ryan indicated in his article, the CSA boards were having trouble from day 1.

I spoke with Dave Haynie, a technician at Commodore-Amiga, and he said that there are other CPU boards in the works that seem to work without any problems, such as Finally Technologies' Hurricane Board.

If CSA plans to take a step further, such as their announced 68030 board, they'd better do it right this time!

Brendan Larson, Meteorologist
WeatherConnect, Inc.
Chicago, IL

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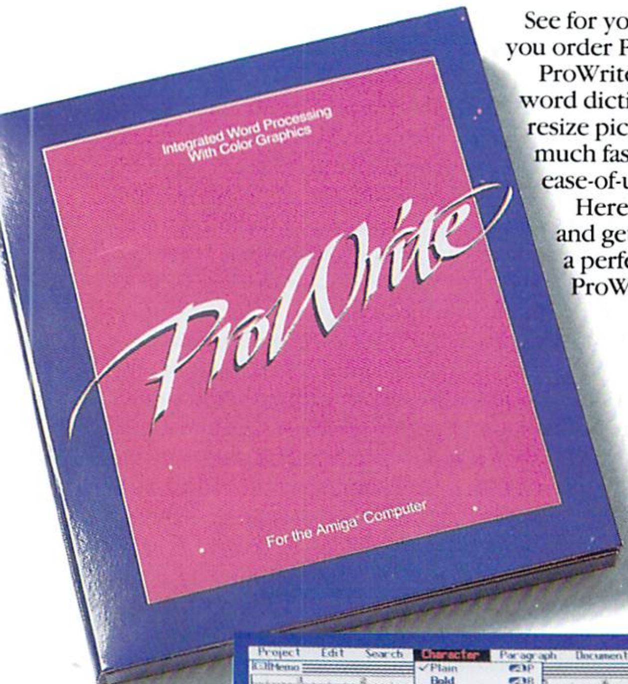

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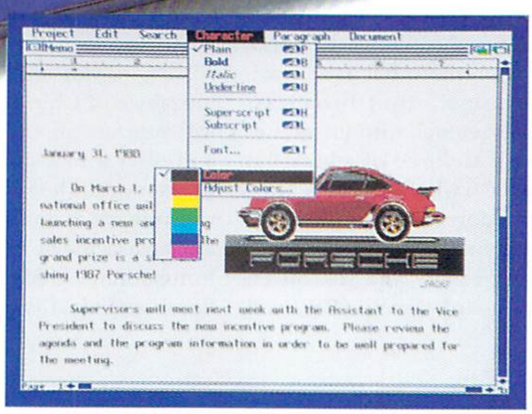

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NOTEPAD

Edited by Linda Barrett

Foreign Correspondence

Spectators thronged Commodore's two-story booth throughout the week-long Hannover Fair in West Germany.

A HOST OF Amiga new product announcements by Commodore sparked much of the enthusiasm at the recently-concluded Hannover Fair in West Germany. The transputer board, the hi-res, non-interlaced black-and-white monitor, the Amiga 2000's genlock, and two new Amigas should all be ready by spring. The company also talked about a streaming tape backup and yet another new Amiga in the works for 1989.

Commodore-Germany is joining Gesellschaft für Biotechnologische Forschung (the Society for Biotechnological Research) to develop a high performance transputer workstation based on the A2000. The transputer uses a number of computers as parallel processors to increase speed remarkably. The high transmission rate of 10 MIPS (Millions of Instructions Per Second) through four superfast serial connections enables the 32-bit transputer chip to be 10 times faster than an IBM PC/AT. Currently the transputer chip comes on a board for the A2000, with or without floating point functions, and by using special interfaces you can link multiple A2000s. The transputer system runs under Perihelion's Helios operating system, but the Amiga handles all I/O operations.

Boasting three non-interlaced resolutions (704 × 256, 704 × 512, and 1008 × 1024 pixels), the A2024 monochrome monitor was getting its share of attention in Hannover. The A2024's new graphics chip splits the screen into six "tiled" images. Because each tile is refreshed seperately, the monitor is not intended for animation. As a desktop publishing or word processing monitor the A2024 should be impressive. The A2024 will work with any Amiga that has 1MB of RAM.

Videophiles were interested in the A2300 Genlock, a video board for the A2000. Commodore is promoting it as a "semi-professional" (not broadcast quality) genlock without sound.

If you are tired of adding on and want a whole new machine, Commodore unveiled two new Amigas. Basically an A2000 with a 68020/68881 and an 80286 bridge board, the A2500-AT will be sold with a 40MB hard drive, the new fast file upgrade, possibly the new enhanced chip set, and an optional streaming tape backup. If you need PC/AT compatibility, the A2500-AT should be interesting. Commodore will also make the 80286 bridge board available to current A2000 owners with the B boards for upgrading. (For all those with an A board, there was some talk about an upgrade kit, but the scuttlebutt indicated probably not.) The A2500-UX will feature a 68020/68881, a 100MB hard drive, fast files, 4MB of 32-bit RAM, the new chip set, and an optional streaming tape backup, all running Unix 5.3. You will be able to upgrade from your A2000.

Plenty of promises and pronouncements accompanied the products. Commodore stated that by the Dev Con show they will significantly improve the Janus libraries, which will help all Bridgeboard owners (and future A2500-AT owners). A lot of talk revolved around the new chip set. Fat Agnus is finished and Denise is being overhauled. Destined for the A500 and A2000, Agnus will access one megabyte of Chip RAM. Denise will support an extra bit plane and offer a new non-interlaced hi-res mode. The revised Denise will require a multi-sync monitor, such as the hi-res color monitor Commodore is developing. Because *AmigaWorld* was sworn ►

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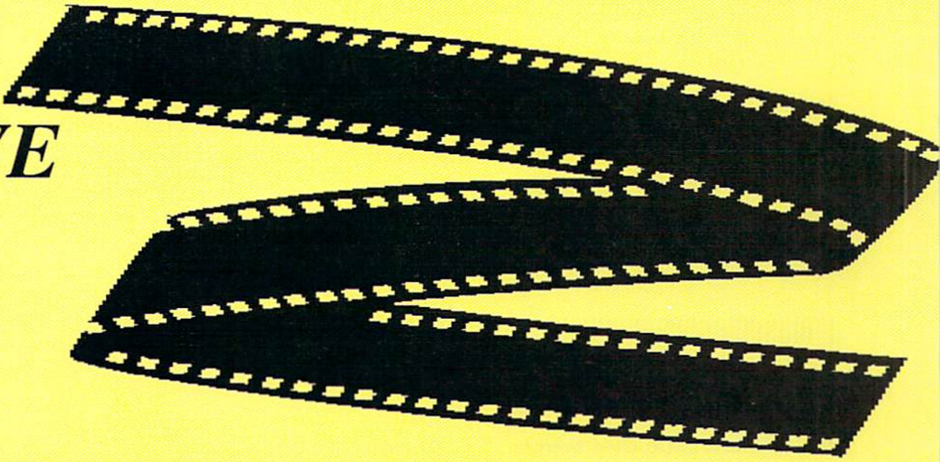

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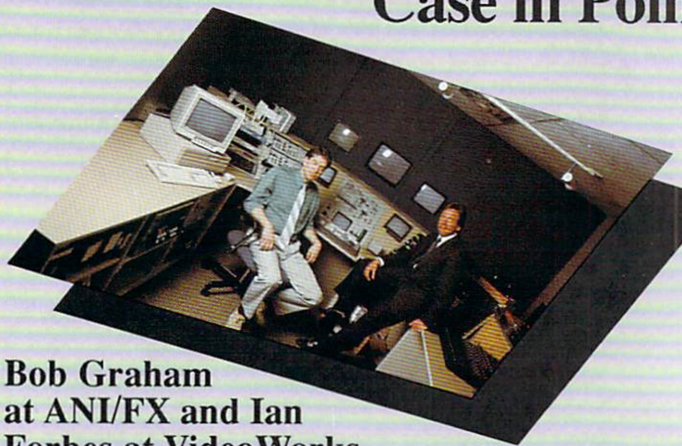
Case in Point



Bob Graham at ANI/FX and Ian Forbes at VideoWorks in Kitchener, Canada, are video professionals. Clients like UNIROYAL and Johnson & Johnson don't settle for anything less than smooth, hi-resolution animation.

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to secrecy, we can't say much more.

Commodore did admit that they are working on a third generation Amiga. The A3000 is a long, long way away (late 1989 at the earliest), so it is absurd to describe its configuration with any certainty. It will probably center around the 68030 chip, run at somewhere near 14mHz, and have 2.2 Gigabytes of addressable memory. No one has confirmed whether it will be a complete 32-bit machine (32-bit processor, chip set, expansion bus, data bus, etc.).

—GSW

The State of the Union Jack

IN A MARKETPLACE often overcautious of new and innovative products, the Amiga appears to be going from strength to strength, with healthy European sales despite Commodore's sometimes strange marketing tactics. Although it previously overpriced the Amiga 500, the company's strategy has had one positive effect. In the face of tripled per-chip memory costs, Atari and Amstrad are hiking prices, while Commodore has managed to absorb the extra costs and maintain the Amiga's price point. The offer of an A500 and A1081 monitor for £700 (about $1260) met with an excellent response.

Because of the A500's price point, the Amiga is seen primarily as a high-end games machine, and most of the software released in Europe is leisure-oriented. Domark (01 947 5624, international phone: +44 1 947 5624) has licensed Star Wars, and produced a very entertaining game. Telecomsoft (a division of the British telephone company, First Floor, 64-76 New Oxford St., London, WC1A 1PS, 01 379 6755, int. +44 1 379 6755) is working on many exciting programs, such as a conversion of the arcade game Bubble Bobble. Due out in July, Starglider II takes the Starglider theme (See p. 90 in the December '87 issue of *AmigaWorld* for a review.), adds solid-fill smooth 3-D animation, and provides the plot and gameplay lacking in the original. Telecom's second offering for space lovers, EPT, is a 3-D strategy and trading game. You fly your ship between galaxies, trading and trying to get the competitive edge.

Similar to Boulderdash, but more challenging, Bonecruncher (from Superior, Regent House, Skiner Lane, Leeds, LS7 1AX, 0532 459453, int. +44 532 459453) is one of the weirdest games yet to appear. You make soap and deliver it to bathing monsters. You also have to avoid spiders, glooks, and nastier inhabitants, all of whom are seeking your downfall. For help you have a dimwitted friend, but he can be a pain later in the game.

More serious software producers are coming out of their shells and beginning to harness the power of the machine. Taurus' (Taurus House, Bridge St., Guildford, Surrey, GU1 4RY, 0483 579399, distributed in the US by Haitex Resources) X-CAD, a powerful two-dimensional package, is due to receive further modules toward the end of the year. The upgrade will add 3-D modeling and should make the already popular program into a standard to beat. Taurus also markets A-Drum, a neat rhythm generator that allows four-track recording and playback. Given the bounds of the Amiga's capabilities the results are very professional.

The growing backup provided by hardware producers in Europe is strengthening the Amiga's acceptance as a serious machine. Robtek (Unit 4, Isleworth Business Complex, St. John's Rd., Isleworth, Middlesex, TW7 6NL, 01 847 4457, int. +44 1 847 4457) has produced a switchable 2MB board for the A1000 and a neat adapter for A500 compatibility. Third-party disk drives continue to appear, some for under $180 (around $100 less than Commodore's offering). Miptec (53 Crouchfield, Boxmoor, Hemel Hempstead, Herts, HP1 1PD, 0442 219260, int. +44 442 219260) is developing a MIDI interface and a sound sampler aimed at the low end of the market.

Every product released increases Amiga awareness in Europe. With time and perseverance, the Amiga should be given the recognition it deserves on this side of the Pond.

—Stu Menges,
Middlesex, England

Quarantine The Bandit

MORE ANNOYING AND destructive than the flu, the Amiga virus (See "Safe Computing," p. 12 in the May '88 issue of *AmigaWorld*.) has mutated into a more deadly strain. Instigated by "The Byte Bandit," this new virus is not content to merely print a message to alert you of its existence. After the proper conditions are met, the virus locks up the machine, rendering it immune to everything but powering down. The symptoms can strike at any time, not simply following warm boots. The virus resides on boot blocks 0 and 1; when an infected disk is inserted into a drive, the virus installs itself in the system, but not in the reset vector. When you access a disk, the virus passes itself on.

One of the first to report the virus, Christopher Halsall of LateNight Developments Corp. (a Canadian programming group) warns that Install and rebooting will not eradicate the infection as with the Swiss Cracking Association virus. Because it does not reside in the reset vector, the virus can protect itself from a reboot. After you install a disk, the virus will immediately rewrite to the disk. "This Byte Bandit has done a lot of undocumented stuff," Chris says. "Check your disks at block 0. If you see 'Virus by Byte Bandit in 9.87.Number of copys :', you're infected."

Commodore has a copy of the virus and is investigating it further. At present it has no plans to revise the VCheck program to specifically search out the Byte Bandit virus. According to Commodore, version 1.9 is adequate as it will alert you to non-standard boot blocks. "If we change VCheck to search for a certain text string [Virus by Byte Bandit], all the virus programmer has to do is change the text string and the check is useless," explained Commodore sources. "The only way to wipe it out is a cold boot from a clean machine and Workbench disk, then run Install." As with the original virus, the only lasting damage the Byte Bandit virus can do is to destroy the custom boot blocks of copy-protected software. With the price of commercial software, that is damage enough.

—LJB

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HORS D'OEUVRES

Hints, tips and techniques

from your fellow Amiga users.

Icons For CLI Programs

TO RUN THOSE public-domain CLI programs from a Workbench disk with an icon, just do the following:

1. On the Workbench disk, create a "dummy" Notepad file and save it. This will give you an icon in the Utilities drawer. Move this icon to your required screen/drawer.
2. Copy the desired program(s) to the Workbench disk.
3. Select your icon and request INFO from the menu bar. Change the Default Tool from the Notepad to your full program name (example: Default Tool = Diskname:directoryname/Programname) and save.

From now on, double-clicking on your icon will run the desired program. Use IconEd to improve your icon's image.

Peter Ensikat
Mandurah, W.A. Australia

Non-Preferences-Supported Printers

IF YOU OWN a printer that is not supported by the Amiga, be sure to try all the drivers before using the "generic" setting in preferences. My STAR NP-10 is fully supported by the Epson driver.

Steve Palosh
Ontario, Canada

Editor's Note: When trying each of the printer selections, be sure to turn the printer off for a few seconds between each test of a different setting. Some printer control codes sent by one driver can lock up your printer or give some pretty strange results. Resetting the printer each time insures that you are giving each printer driver or setting a fair chance. If your problem is just that you aren't getting line feeds, you should be able to adjust the printer's DIP switches to add line feeds with each carriage return. Check your printer manual for DIP switch settings. (If you can't find the manual, try DIP switch #2. Half the time, line feeds are controlled by DIP switch #2. For newer Epsons, try DIP switch #8.)

Rapid-Fire Joystick

QUITE A FEW years ago I spent $3 on a gadget for my VIC-20 called a fire-speed adjuster. It plugs into the joystick port and allows you to have continuous rapid-fire while holding down the fire button, whether the software supports it or not. I found it in my basement yesterday and plugged it into my Amiga, then began sword fighting with Defender of the Crown. This gadget should be standard equipment for any arcade gamer who values their thumb or index finger!

I. Montoya
Toledo, Spain

Quick DIR

GETTING A DIRECTORY from your Amiga can sometimes be a time-consuming operation. Many times I find myself doing a directory simply because I have forgotten the name or spelling of something that has just scrolled off the screen. Well, there's a simple solution. Type

```
DIR > filename
```

or

```
DIR > filename opt a
```

Now whenever you want a fast directory, just type

```
TYPE filename
```

The response is much better. Whenever the directory is changed, for whatever reason, simply type DIR > filename again. Note that the filename can be anything, such as RAM:directory, or perhaps simply directory. The latter will place a directory listing in a file named directory, in the current directory. If you don't plan on altering the directory afterwards, you might want to spruce up your new directory file using ED.

Leonard MacEachern
Nova Scotia, Canada

Graphic Dump Fix For Not-Quite-Supported Printers

MANY AMIGA OWNERS know the frustration of using a printer that does not have a perfectly corresponding printer driver in DEVS:printers. For example, I use the Epson driver to run my Star SG-10, and this usually works fine. However, when doing a screen dump (using 1.2's GraphicDump program), I get ugly gaps between each line of graphics, because the Epson driver, understandably, doesn't send the seeded SG-10 line gap adjustment commands. A six-line Amiga Basic program provides a temporary solution and can probably be adapted for use with other not-quite-supported printers as well. Here is the program:

```
OPEN "PAR:BIN" FOR OUTPUT AS 1
esc$ = CHR$(27)
PRINT #1,esc$;"@";
PRINT #1,esc$;"A";CHR$(8);
PRINT #1,esc$;"K";CHR$(3);CHR$(0);
CLOSE 1
```

The file name PAR:BIN specifies that the parallel port is to be used for literal binary output. (Use SER:BIN for a serial port printer.) This is so that we can send SG-10 commands, which are not supported by the Epson driver, directly to the printer without driver interpretation. The third line just resets the printer. The ►

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next line (ESC-A plus character 8) simply tells the SG-10 to space its lines eight dots apart (the adjustment lacking in the Epson driver). This alone is insufficient to correct the problem, because GraphicDump automatically rests the printer, destroying whatever adjustments we make from BASIC. This is why I have included the fifth line. It says, in effect, to interpret the next three characters received as binary graphics. So now when the printer gets the rest sequence from GraphicDump, it will instead print a tiny graphic smudge in the upper-left corner of the page. Not too spiffy, but it's usually obscured by the real graphics. Anyway, the adjusted line spacing will thus remain in effect, and you'll get a perfect dump.

To use the program, simply run it just before you use GraphicDump. To use GraphicDump, double-click on its icon and then bring the screen you want printed to the front. (See "Tangible Graphics," p. 44, in the *AmigaWorld* Special Issue '87.) You will have to run the BASIC program each time you wish to use GraphicDump.

For best results on this kind of printer, I suggest using vertical aspect (it's bigger that way) and a positive gray-scale image, all adjusted from Preferences, of course. And remember, this quick fix from BASIC, which ignores the next few printer driver commands, might be used to correct many types of compatibility problems with many different printers. See your printer manual for details on the control codes involved. Experiment!

Michael Frank
Chattanooga, TN

ORGANIZING INFO

HOW DOES ONE manage to assimilate and retain the wealth of information appearing in all these articles? Easy, if you use a yellow highlighter pen and an idea processor. Just keep the highlighter nearby when first reading *AmigaWorld* and mark each item you think you might want to remember. Later, go back and enter the items you highlighted into your idea processor (I use Flow). You can then do two things to help you organize the information. First, include comments, indented under each heading (for example: issue, page number, etc.). Second, you can alphabetize the headings with the click of a mouse.

This technique can also be used for other things, such as AmigaDOS commands.

Michael E. Uebelhack
Idaho Falls, ID

QUICK KEYBOARD TEMPLATES

A "POST-IT" NOTE sheet (made by 3M and found in office-supply stores) works well for program templates. Write out reminders for the function of each key on the keypad, trying not to extend too far below the sticky part. Now cut off the sheet and attach it to the keyboard above the keypad or the function keys. These sheets will not leave a residue on the keyboard, they are easily removed and reused (if you don't get the sticky part dusty), they are customizable, and—best of all—cheap.

Marian Boniface
Pasadena, MD

SHORTER COMMANDS WITH ASSIGN

AS OFFERED BY Rigoberto Ramirez (*AmigaWorld*, July/August '87, p. 16), shortened commands can be quite convenient. Another way to obtain them is to ASSIGN them as a device. If, for example, you enter

```
ASSIGN X: C/EXECUTE
```

then you can type X: in place of the EXECUTE command. This usage of devices takes up only 80 bytes of memory and does not alter the normal functioning of the commands.

Also, the device can be removed by typing

```
ASSIGN X:
```

If you type ASSIGN by itself, you will get a list of all your current devices.

Ron Molnar
Pittsburgh, PA

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REVIEWS

INTERCHANGE

Common ground for 3-D graphics.

By Louis Wallace

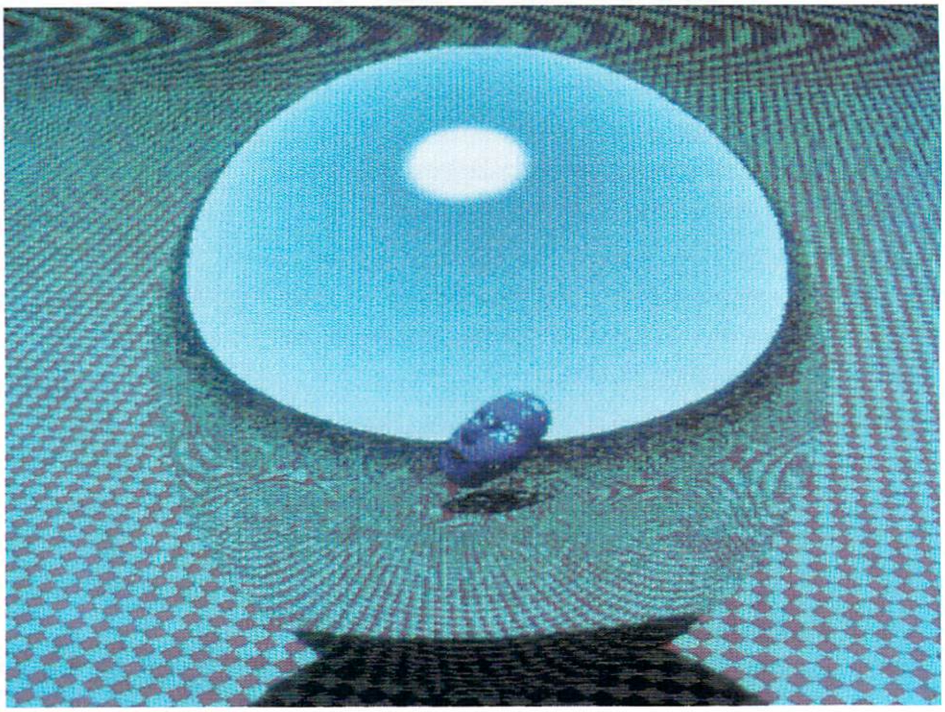
TODAY'S MOST prominent three-dimensional modeling packages, VideoScape 3-D (Aegis), Forms In Flight (Micro Magic), and Sculpt 3-D (Byte by Byte) each contain superb, diverse features. None, however, completely satisfies the 3-D designer by itself. VideoScape 3-D offers high-quality animation, but does not include a geometric-object editor. Forms In Flight has an excellent 3-D editor for modeling solid objects, but its animation module lacks sophistication. Sculpt 3-D's editor is very good, and it can produce incredible images using ray-tracing techniques, but until now you had to buy an additional Byte by Byte program, Animate 3-D, to get a congruous animator.

All these packages have lacked one important thing, namely, compatibility. Unlike painting or music, no standard IFF-type format allows you to produce a single image by using the various programs' strengths. That limitation sets the stage for Interchange.

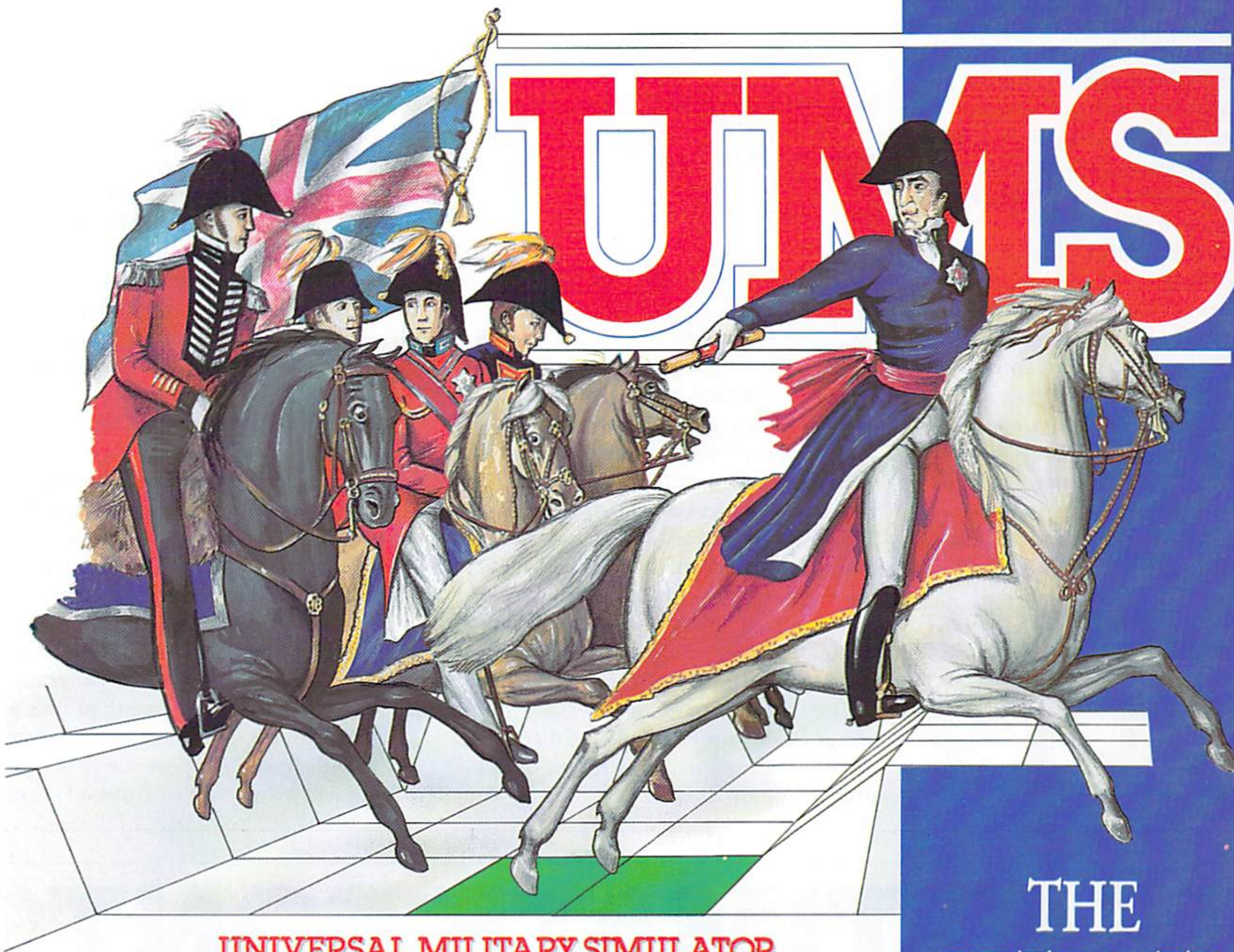
Interchange bridges the gap, allowing you to convert objects quickly and easily between formats. The main program comes with conversion modules for Sculpt 3-D and VideoScape 3-D. The Forms In Flight module is available separately for $19.95. Syndesis wisely recognized that software-specific modules allow easy upgrading of the package. Currently, Interchange converts between VideoScape 3-D GEO objects, Sculpt 3-D SCENE objects and Forms In Flight MMO objects. The modules operate as separate tasks, but they will not work without Interchange running concurrently.

Interchange is entirely mouse driven. Click on the Interchange icon, then on the modules you wish to use from the main menu. The Interchange icon opens a window on the Workbench screen. The left side of the window contains a list of disk files. To convert objects, just double click on their file names; the names will appear in the selected file list to the right. Then choose the destination path and output format, and click the convert gadget. If you have selected an incorrect file for conversion, an error message will appear. Otherwise, the program mandates no further input from you. Just sit back and wait while Interchange examines the source object and translates it to your chosen format. For simple images, the process can take only moments; complex objects require a bit more time to calculate and draw.

I converted most sample geometric objects on the VideoScape 3-D disks to both Sculpt 3-D and Forms In Flight, and several Forms In Flight .mmo files to Sculpt 3-D and VideoScape 3-D. I also transformed some Sculpt scenes to VideoScape geometrics and Forms In Flight .mmo objects. All shapes converted extremely well. The Interchange manual mentions that in a few instances polygons might not convert properly, but I did not notice any differences. Some textures (object surfaces) are not interchangable. For example, there is no equivalent in either VideoScape 3-D or Forms In Flight to Sculpt 3-D's mirrored surface, so mirrored objects are translated with matte surfaces. Sculpt 3-D also offers wider selection of color than ►



The Forms in Flight mask and mirrored Sculpt 3-D sphere; together at last.



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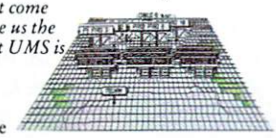

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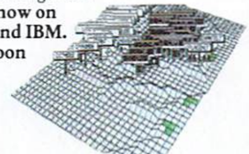
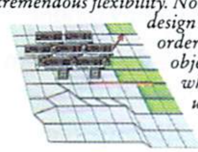
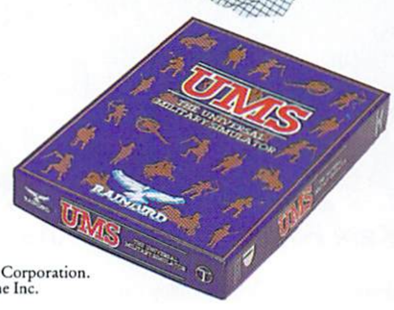




Screenshots from Atari ST.



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VideoScape, so Interchange matches the colors as closely as possible. When I imported a sphere created with Sculpt 3-D into Forms In Flight, I had to increase available RAM before Forms in Flight could manipulate the sphere. This wasn't surprising; a sphere consists of a great many polygons, and the two programs handle information differently.

The manual is brief but adequate. It explains the functions of the gadgets and how to use them.

I recommend Interchange; it is an extremely useful tool. Because of Interchange, I can now consider different graphics programs as parts of a complete package. Other modules in the works include the Silver 3-D ray-tracing package from Impulse, Animator Apprentice (Hash Enterprises), VideoScape 3-D version 2.0, and the Animate 3-D system.

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GOMF

Breathes there a man

with soul so dead

Who never to himself

hath said . . .

"Get outta my face, Guru!"?

By Gary Ludwick

IF YOU'VE BEEN working on an Amiga for more than a day or two, chances are you've met the Guru. An ominous flash warns you to finish all disk activity, followed by the red guru meditation box and blinking power light. Then, perhaps hours of work disappears under a complete system reboot. GOMF (which, as you may have guessed, stands for Get Outta My Face) promises to deliver us from the dreaded Guru.

The Guru visits when tasks or processes clash with each other. Since there are often a number of different operations going on at once in a multitasking environment, occasional traffic accidents should come as no surprise. Unfortunately, as things now stand, our traffic cop—the Guru—doesn't just arrest the guilty party, but hauls everybody off to reboot land.

Although it works in a highly technical way, GOMF presents a relatively uncomplicated face to the user. You can invoke it from a Workbench icon or the CLI. To get the most out of the package however, you should install it on your program disks at the beginning of the startup-sequence. This gives you automatic crash insurance.

Now, when an error occurs and you select Cancel from the Task Held Error requester, you are offered the GOMF menu instead of a Guru message. If the task or program you are working in has a window, your procedure is simple: select Whap from the GOMF menu and quickly click on the offending program window. Almost instantly, GOMF removes the window and the program that caused the error. If more than one window from the same program is open, you may have to repeat the procedure for each. When you've finished cleaning ►

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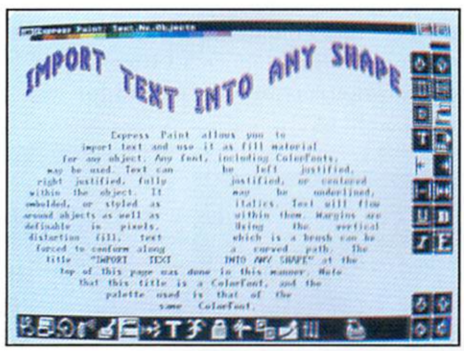
Most other graphics programs stop when it comes to text processing. Not here. Express Paint lets you import text from your favorite word processor, select any font, even Colorfonts™ and place it anywhere. Then touch it up with justification or styling. You can even flow the text into an image of any shape!



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Horizontal page size (pixels)	8192	1024
Extra Half Brite Mode	Yes	No
Unlimited locks	Yes	No
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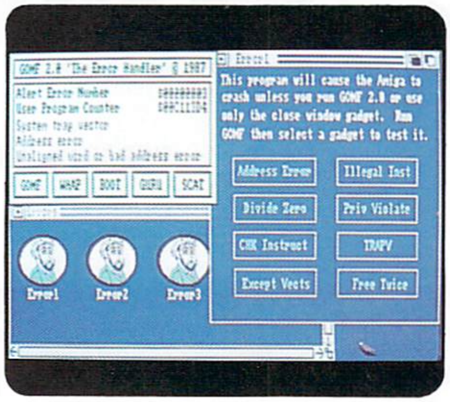
up the screen, simply click on the button labeled GOMF and you are back in business.

Tames More Than Gurus

Errors involving screens and windows are the most common, but there are others—system/software errors—that just hide out, eating up memory and slowing things down. GOMF handles these, too, with slightly more work on your part. First invoke a display of the Task Queue—the list of tasks currently being processed (one of which is the cause of your problem)—from the CLI or Workbench. Take your best guess at which is the troublemaker, and type in NUKE <program name>. There is sometimes more than one agitator, so you may have to repeat the procedure to completely eradicate the problem.

While most of us are faced with only the occasional Guru, programmers testing new code meet the man often. GOMF includes an object-code file that can be linked to the object output of an assembler or compiler. Also, GOMF in its normal mode displays error addresses so that programmers can swiftly disassemble to the sources of error.

While GOMF does a superb job of keeping your system intact and the loathsome Guru in his cave, it is not a cure-all. GOMF cannot deal with the bad code



Giving Guru the boot is easy.

that causes a system lock-up. Once you resort to the CTRL-Amiga-Amiga reset, even GOMF is lost.

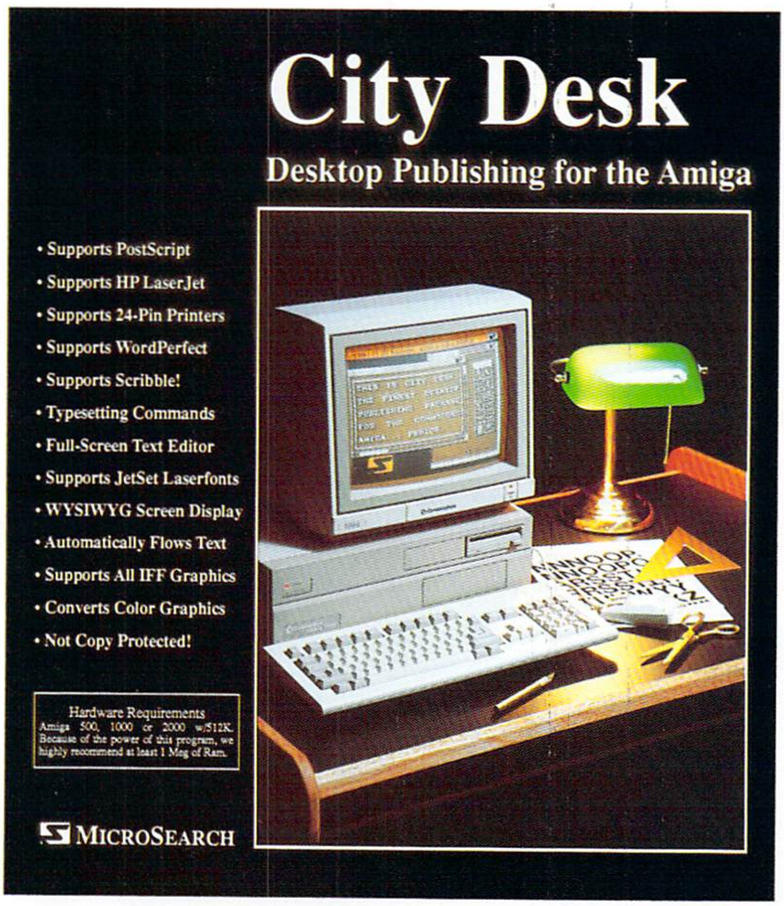
The program comes on a single, non-protected disk containing a drawer of Error programs that induce a variety of intentional errors into the system for you to practice on. Also provided are two manuals. The larger details how GOMF works (the many blank spaces indicate that illustrations were intended), and the smaller is a tutorial supplement with screen photographs of somewhat dubious quality. The tutorial does a good job of relating the hows (which button to push and when), but rarely explains the whys.

GOMF performs flawlessly. While utilities such as recoverable RAM disks deal with the symptom, saving memory from being lost during a Guru reboot, GOMF addresses the cause and prevents reboots from occurring in the first place. That saves not only memory and data, but also the system reconfiguration time that recoverable RAM disks require to re-run your startup-sequence each time a crash occurs. With both GOMF and a recoverable RAM disk in your startup-sequence, you should be covered against any type of system crash short of a power failure. (Incidentally, GOMF 1.0, a shareware staple on many BBSs, lacks the sophistication in error trapping and the many user features of the commercial version.)

Continued on p. 70

City Desk 2.0

POWER & *FINESSE*



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BASIC By The Numbers

With some properly applied Intuition, you can jimmy BASIC windows like a professional.

By Bob Ryan

34 Windows and Gadgets

THE AMIGA SYSTEM software includes a marvelous set of routines called Intuition. Written by R. J. Michal, Intuition makes it simple for you to create easy to use programs. Amiga Basic gives you access to many Intuition functions without requiring you to study the ROM Kernel manuals for a year. Nothing points this out better than the way you access system gadgets from Amiga Basic.

System gadgets control basic window functions such as window sizing, repositioning, and closing. Your program doesn't have to handle these events, Intuition controls them all. All you need to do is indicate the gadgets you want on your window. In Amiga Basic, you indicate the gadgets you want when you open a new window. The proper syntax of the WINDOW statement is:

```
WINDOW window-id, title, upper_left-lower_right, type, screen-id
```

I discussed most aspects of opening windows in the last issue (see "Basic By The Numbers," p. 22 in the May '88 issue of *AmigaWorld*), so rather than rehashing everything here, I'll concentrate on the *type* parameter.

Amiga Basic windows can have up to four system gadgets: Sizing, Drag, Back, and Close. Each gadget has an associated value, listed in the following table.

Gadget	Value
Sizing	1
Drag	2
Back	4
Close	8

To add a system gadget to your Amiga Basic window, you simply put its number into the WINDOW statement's type parameter. To demonstrate this, the following program opens four windows on the Workbench screen, each with a different gadget. Note that because I did not include the screen-id parameter, the windows open on the default (Workbench) screen.

```
REM Gadget Windows
WINDOW 2,"Size Gadget Window",(10,10) - (600,40),1
WINDOW 3,"Drag Gadget Window",(10,50) - (600,80),2
WINDOW 4,"Back Gadget Window",(10,90) - (600,120),4
WINDOW 5,"Close Gadget Window",(10,130) - (600,160),8
FOR x=1 to 10000
NEXT x
WINDOW CLOSE 5
WINDOW CLOSE 4
WINDOW CLOSE 3
WINDOW CLOSE 2
END
```

Combining gadgets is equally easy; simply add their individual values. The following program produces a window that contains all the system gadgets. The value of the type parameter, 15, is the sum of the values of the four different gadgets. Note that each combination of gadget values yields a unique number.

```
REM All Gadgets
WINDOW 2, "All Gadgets", (20,20) - (400,150), 15
FOR x = 1 to 5000
NEXT x
WINDOW CLOSE 2
END
```

35 Close Calls

IF YOU HAVE dabbled with Close gadgets from C, you know that they are handled differently than they are in Amiga Basic. When you click on the Close gadget in an Amiga Basic program, Intuition closes the window. In C, Intuition doesn't close the window; it sends a message to the program that the gadget has been selected. The program must perform any tasks necessary to shut down the window correctly.

Letting the user (through Intuition) determine when a window should close is not always a good idea. Consequently, I don't often use the Close gadget in my Amiga Basic programs. Instead, I let users quit by selecting a menu item. I then get to do any processing necessary in order to exit the program correctly. ►

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36 WINDOWS WITH SMARTS

IN ADDITION TO specifying the gadget a window gets, the type parameter can also indicate whether a window has an attribute called SMART_REFRESH. Whenever a SMART_REFRESH window is covered by a requester or another window, Intuition saves the information that was covered. When the window is uncovered, Intuition restores the window to its original state. The value associated with SMART_REFRESH is 16. To use SMART_REFRESH window, add 16 to the type parameter. Here is an example of SMART_REFRESH in action.

```
REM SMART_REFRESH
WINDOW 2,"SMART_REFRESH Window",(40,40)-(600,160),16
LINE (10,10)-(200,200),3,BF
WINDOW 3,"Covering Window",(60,60)-(500,170),15
FOR x=1 to 5000
NEXT
WINDOW CLOSE 3
FOR x=1 to 5000
NEXT x
WINDOW CLOSE 2
END
```

This program opens a SMART_REFRESH window, draws a box inside it, and then opens another window on top of the first. After a pause, the program closes the second window. Because the original window is a SMART_REFRESH window, Intuition automatically reconstitutes its contents. SMART_REFRESH windows are convenient, but they consume a lot of memory.

37 OUT THE WINDOW

BESIDES WINDOW, which opens windows, and WINDOW CLOSE, which shuts them, Amiga Basic offers two other types of WINDOW statements. The WINDOW OUTPUT statement lets you designate which open window will display output from your program. WINDOW OUTPUT makes the designated window the current window.

Don't confuse the current window with the active window, which accepts keyboard and mouse input. Unlike C, Amiga Basic doesn't let you specify the active window from inside a program. The user selects the active window by clicking on a window.

The final window-control statement, the WINDOW(n) function, returns information about windows your program has opened. The function takes one of eight arguments that return information that may be of concern to your program. Here are the WINDOW(n) arguments and the information they return.

n	*= Information*
0	window-id of the user selected window
1	window-id of the current output window
2	width of the current output window
3	height of the current output window
4	x position of the cursor in the current output window
5	y position of the cursor in the current output window
6	highest color number allowed in the current output window
7	pointer to the Window structure of the current output window
8	pointer to the RastPort structure of the current output window

The usefulness of the information returned by each WINDOW(n) function varies with the program. If you like to open many windows at once, you'll use the first two functions often to keep track of input and output. I never use WINDOW(4) and WINDOW(5), but you may need them someday to help you format an output display. WINDOW(6) is a pretty useless function. Since you know which screen you opened a window in, you obviously know the number of colors allowed in the window. The last two functions are used if you need access to low-level information about your windows. Frankly, if you're going to be fooling extensively with the Window and RastPort structures, you're better off learning C.

The most useful of the WINDOW(n) functions are WINDOW(2) and WINDOW(3). If you supply a sizing gadget with a window, the user can resize the window at will. If you don't check the dimensions of your window before you draw in it, you may find yourself drawing outside the visible area of your window. Using WINDOW(2) and WINDOW(3) can prevent this. See May's Basic By The Numbers (p. 22) for an example of how WINDOW(2) and WINDOW(3) are used to keep output within the visible portion of the current window.

38 WHAT'S ON THE MENU?

NEXT TIME, I'LL cover creating and using menus. Until then, send questions and comments to Basic By The Numbers, AmigaWorld, *80 Elm St., Peterborough, NH 03458.* ■

76 Trombones, 110 Cornets, A Thousand Reeds...

By Ben and Jean Means

ROBERT PRESTON DIDN'T have a neat network of black-and-silver MIDI cables to coordinate his ensemble (although he did have a cast of thousands and a multimillion dollar Hollywood budget behind him). But you (and your Amiga) can become your own "Music Man" right at home—with MIDI.

The Musical Instrument Digital Interface (MIDI) has changed the way most popular (and sometimes not so popular) music is made. The reason is simple: connectivity. Before MIDI became available in late 1983, synthesizers, drum machines and computers made by different manufacturers had little or no way to communicate musical information. Now by plugging in those little black and silver MIDI cables, you can play multiple synths, samplers and drum machines from one keyboard. Best of all, with a MIDI sequencer you can record the MIDI data generated by your playing—then edit it, correct it and play it back. Even the most mediocre players can create perfect, "look Ma, no hands" performances. It's easy because MIDI is stored as pristine raw data, instead of finished sound; you can change the tempo, sounds used, key signature and song arrangements in the pure digital atmosphere of a MIDI sequencer—without having to rerecord or splice tape. (For further information on MIDI, see the sidebar "MIDI Made Easy" accompanying this article.)

So, if you're willing to invest about $2000 in equipment, you can make a simple but powerful Amiga MIDI system that will let you produce music that blends digitally synthesized, sampled and live sound sources. With just one four-voice sampler and one four-voice synthesizer, you will be able to layer multiple tracks of MIDI sequences in sync with each other to create the illusion of a whole band.

A Little Shopping Spree

As a given, we will assume you already have an Amiga with two drives and at least 1MB of RAM, along with some kind of home stereo system and a cassette recorder. We will add to that a Casio CZ-101 synthesizer ($499), Sound Quest Inc.'s Texture sequencing software ($299) with an MIF-AMG adapter from MusicSoft ($125), a Roland MPU-401 MIDI interface ►

Want to be composer, arranger, conductor and recording engineer of your very own band? Well, hook up a MIDI music system to your Amiga.

ILLUSTRATED BY KATHERINE MAHONEY

($275), the SoundScape Sampler by Mimetics ($99) and a serial port MIDI adapter ($49). Let's also throw in an Alesis Microverb ($249) to add richness to your synth and sampler—as if they were being played in a variety of spaces, from tiny digital rooms to special effects caverns.

For recording and mixing tracks, you will need a four-track cassette deck, such as the Tascam Porta 05 ($449) or Fostex X30 ($499), and one professional microphone for vocals. The Shure SM78 is a good mic for a little over $100, but there are also fine mics made by Fostex, Electro Voice, Audio Technica, TOA and others for around the same price. Check out several mics and pick the one that sounds best with your voice. (After all, the mic that sounds perfect for the punk-funk band Suicidal Tendencies will not necessarily be the right choice for all the personas of David Bowie.) You are also going to need a mess of cables and adapters.

Getting Wired for Sound

First, we will have to hook all this stuff up. Make all your Amiga connections while powered down and check that you have the correct MIDI adapter and MIF-AMG adapter for your specific machine (A500, 1000 or 2000). Be careful with the MIF-AMG's fragile ribbon connectors.

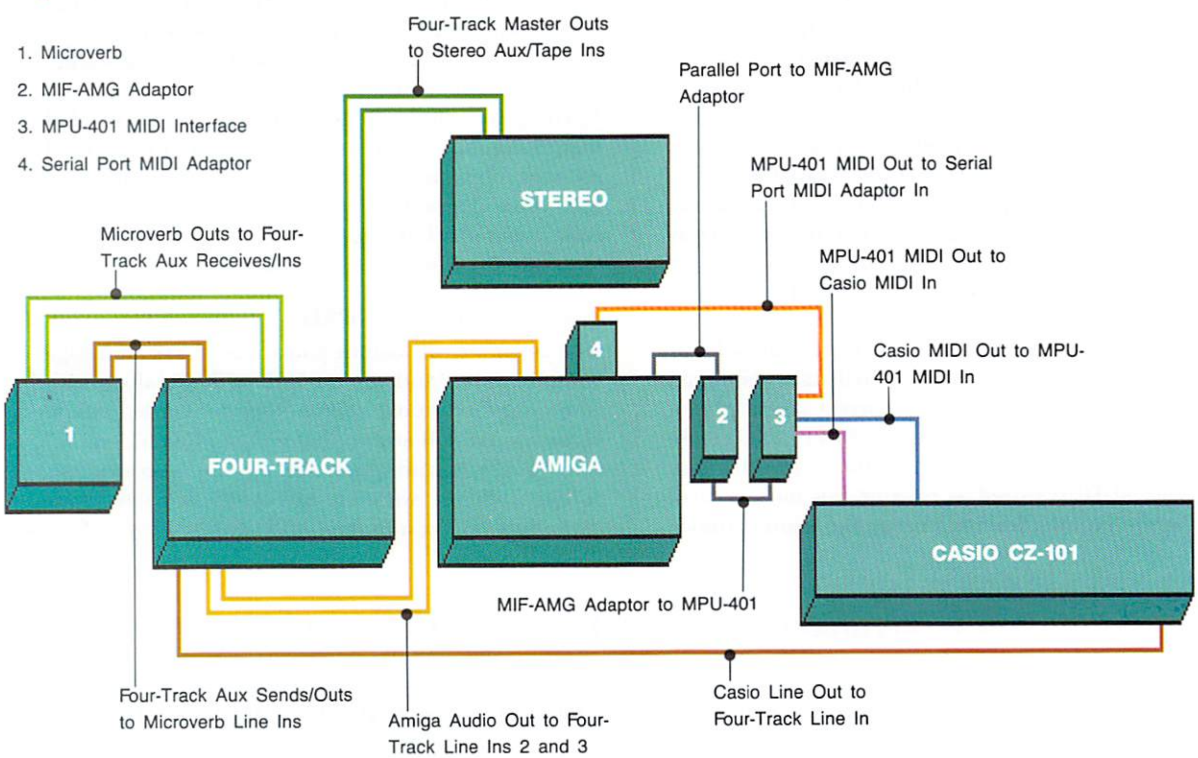
Now hook up your system as in Figure 1. Remember the first law of musical connectivity, the "Ins and Outs Rule": Inputs go to outputs, and outputs go to inputs. If you don't, and you're lucky, it won't work. If you're not so lucky, you'll fry some innocent microprocessor's brains out with voltage it can't handle.

Once you are fully hardwired, recheck all your connections. Now for your next important set of instructions in taming the formidable MIDI beast: Make sure the volumes on your stereo, four-track and CZ-101 are all set to zero; then power all that hardware up. Boot your Amiga and load Workbench; boot up the Mimetics sampler and load a sound. Now insert the Texture disk and open the Texture 2.4 window. (Read the Texture manual on how to install the MPU-401 libraries on your Workbench.) Now click on MIDI Thru in Texture, and it will change from a point to an asterisk. This lets the MIDI input from the CZ talk through Texture to the SoundScape sampler.

Make sure your Casio is set to MIDI channel 1. If you are running the sampler as a stand alone, this is the only channel to which it will respond. If you are running it as a module in SoundScape, it can be used on any or all of MIDI's 16 channels. Now bring up the volume of the CZ to the max and play a few notes while setting the input levels of the four-track according to its manufacturer's instructions. Finally, at long last, you can set the Master Out level of the four-track and bring up the volume on your stereo to hear the sound of the CZ and the sampler. You have just patched together a complete Amiga recording studio.

If you can leave your system set up like this all the time, do so. Making music is fun, but pulling cables

Figure 1.



MIDI Made Easy

CONTRARY TO POPULAR opinion, the Musical Instrument Digital Interface (MIDI) is not a devilish scientific experiment to hinder the uninitiated and befuddle the unwary. MIDI is simply cables that communicate musical information; for those number-crunching techno-fiends who just must have their specs, MIDI is more specifically a serial interface that uses five-pin black-and-silver cables to carry information at 31.25 kilobaud.

At its simplest level, MIDI lets you play one keyboard while another keyboard hooked up via a MIDI cable plays exactly the same notes over a ten-octave range. MIDI, however, not only can communicate which notes to play, but also how to play them.

Note Velocity tells how hard the keys were hit, and Pitch Wheel lets you bend notes like a guitarist bends strings. Program Change tells the synths which sound to use, and Control Change is digital versatility in a wire-wrapped cable, with effects like sustain pedals, modulation wheels and even MIDI-controlled lighting, sound processing and mixing. Aftertouch tells how hard you are leaning on the keyboard as you hold down a chord, while Polyphonic Key Pressure tells how hard you are holding down each note.

In addition, MIDI has 16 channels, each of which can be sending a separate set of information to its own synthesizers and samplers, in effect allowing 16 discrete performances to occur at one time!

No wonder MIDI has changed the face of modern music. Its sonic potential is enormous, and as software and hardware engineers continue to think of new ways to use it, MIDI is becoming more powerful by the minute.

Usually an instrument is assigned to one MIDI channel at a time; this is called Mode 3, or Omni-off Poly. Lately, however, many manufacturers are including Mode 4 (Omni-off Mono), which lets you use one synthesizer on multiple channels simultaneously. For example, the CZ-101 usually plays four notes at a time of the same sound when in Mode 3. But in Mode 4, it can effectively be split up into four monophonic synthesizers, each on its own MIDI channel with a different sound. One CZ could be playing a bass line, a log drum, a trumpet and a flute simultaneously. This greatly enhances the power of your small MIDI system.

But did those techno-wizard, sound-junkie engineers stop there? No way—now there's multi-mode, which works like Mode 4 but allows multiple voices to be assigned to different MIDI channels. Therefore, on an eight-voice instrument, one voice could be playing bass on channel 1, three voices could be playing horns on channel 2, two voices could be playing guitar power chords on channel 3, while a solo sax wailed away on channel 4 as a solo guitar ripped it up on channel 5. We've got one little box that sounds just like an entire band!

I have gazed into the future of music, and it's got MIDI written all over it.

—BM & JM

is a drag, and the less time it takes you to get up and running, the more often you will want to use your system. But if you absolutely must break down your system on occasion, label your cables. You can use stick-on numbered labels from Radio Shack and put a number by each In or Out on your gear to correspond to its connector. A cheap alternative is to use ½″ or ¾″ masking tape and a permanent ink pen to make your own labels. Either way, a few minutes of labeling can save you from hours of the "where does this plug go?" syndrome.

Splitting the Signal Path

Invariably, it may seem that you have done everything right, but still the Amiga is dismally silent. Relax. I've seen experienced recording engineers screw up even simple audio patching jobs. And you can track down your mistakes the same way they do, which brings us to the second law of musical connectivity, the "Signal Flow Rule": Triggers speak to sources, which speak to mixers, which speak to amplifiers, which speak to speakers, which speak to your ears, which speak to your brain. The trigger in this case is the CZ's keyboard, the sources are the CZ's synthesizer section and the sampler, the mixer is the four-track, the amp and speakers are your stereo system and your ears are attached to your head, which contains your brain.

The easiest way to hunt for problems in the signal chain is to find test points where you can check the direction from which the problem is coming: downstream towards your brain or upstream towards the trigger. Hold a tantalizing bit of tuna in front of your cat, or other fur-covered creature; did you hear a startling sound? Good, we have proved that the ears ►

and brain are not part of the problem and that the fault in the system must lie upstream.

Now, suppose you can hear the CZ, but not the sampler; this eliminates the amp and speakers as a possible problem. You have narrowed the problem down to the trigger, source and mixer. Go to the middle one, the source (in this case, the sampler), and check it out. Activate the keyboard window in the sampler, and type "qwerty." If you hear an ascending scale, you know that the problem is upstream at the trigger. If you hear nothing, you know the problem is downstream at the mixer or right here at the sampler.

This technique is called splitting the signal path and becomes especially useful when you have long chains of devices hooked up. If you start checking at device 1 and the problem is in device 9, you will have eight more devices to go. If you split the signal path, however, and check device 5 first, you won't have to check more than four more devices once you determine from which direction the problem is coming. So divide and conquer your signal flow problems, and let's start making some tuneful noise!

"We Are Computers"

You are being . . . programmed to be
Automatons; now follow
My every word.
Load your program . . . accept the latest software.
Now, you can be
Way cool and Hip.

Turn your TV . . . to Channel 7
And you'll get sex engrams
Into your mind.
Now turn quickly . . . to Channel 4
And you will see your morals
Go up in smoke!!

CHORUS:
WE ARE COMPUTERS
We are not people;
We are tailor-made for corporations.
WE ARE COMPUTERS
We have no conscience;
We only print out pointless information.

Soon, it will be . . . time to phase out all humans;
They are ugly
And imprecise.
We will make the . . . whole world a logic heaven
Where each robot
Can have free choice.
So, now humans, witness the wave of future;
You've created your seeds of doom!!
Thank you humans . . . you were so very thoughtful
To create us
From your mind's womb!!

CHORUS:

"Sampling" the Rhythm Section

A sidebar to this article, "We Are Computers," presents the lyrics to a brand new smash hit of the same name—a mechanical masterpiece by the obscure cult band Captain Grunion and His Amazing Smelt Warriors. We will show you how to re-create, sequence and record this moronically simple ditty, and in the process give you tips on sampling, sequencing and recording etiquette.

Before we begin, we will need to sample some sounds into a sampler, which we are going to use to generate a percussion orchestra of drums and ear-shattering special effects. For this is the useful beauty of samplers: Anything you can take a line level from or stick a microphone up to can be turned into an instrument. This digital legerdemain is accomplished by an analog-to-digital converter (ADC), which turns those real-world sounds into streams of zeros and ones.

For this article, we chose the Mimetics Sound Sampler, as it is currently the most convenient Amiga sampler to use with a MIDI sequencer. We will use this sound sampler to set up an eclectic drum kit—with a kick drum, a snare drum and a cowbell—and our percussion/special effects kit. What? No drum set? No matter . . . we'll improvise. So warm up your sampler, hook up the microphone and read your manual.

Imitation kick drums are easy to make, because all you need is a low-end thud. I produced a wonderful thud by hitting the door of my '52 Frigidaire with the side of my fist while holding the microphone three inches away. Countertops, overstuffed furniture and walls are some other innovative candidates to strike with the spirit of abandon and adventure. If necessary, you can produce the ultimate eclectic kick drum with your own voice by saying "Puh" as low as you can into the microphone and then translating this down an octave. Then place your resounding thud into octave 4.

Similarly, you can produce a snare drum by saying "Chuh" and translating this down an octave. Or experiment with this art of tuneful noise by beating a drumstick or rubber mallet on small wooden or cardboard boxes, bicycle seats, pillows or a shower curtain until you find a sound you like; then put this sound into octave 5.

Finally, for our cowbell, we can substitute a tongue cluck or a china coffee cup that is held upside down over the microphone and thwacked with a finger. Then lay this cowbell down in octave 6.

One important sample tip is to always allocate more ►

sample time than you need, and then truncate (delete) those silent parts out. After truncating the silences, always save your raw samples to disk; then you can experiment fearlessly in the Sample Capture and Edit window without losing a divinely fortuitous sample.

Now that your drum kit is well tuned, save it and clear the sampler to create the percussion/special effects set. First, we need a resounding crash in the manner of the 1812 Overture, which I created by beating tympanically on the side of our stove and sampled into octave 4. One other classic effect is a garage door, the springs of which ring brilliantly when struck. In octave 5, sample a short imperative "Shh." Again, do a rough truncation and save this as your special-effects kit.

Why, you might ask, have we created instruments only using two or three octaves, when the Mimetics sampler will access a ten-octave range? To keep this tutorial as simple as possible, that's why!

Texture: The Art of Making Tracks

Sequencers are the word processors of synthesized music; like WordPerfect, Texture is another port-over from the IBM that has gained in the translation. (See the authors' review of Texture 2.0 in the July '87 issue of *AmigaWorld*, p. 68.) The new Texture 2.4 is a 24-track sequencer that adds mouse support and multitasking for animating rhythms in a wild and crazy Amiga music studio.

We chose Texture for this review because a musician should spend his or her time making music, instead of learning and fiddling with a fussy sequencer. Texture's software engineer, Roger Powell, has called his program "user indifferent"—it doesn't coddle you with "Are You Sure?" requesters. It just lets you bash around in a fast and beautifully simple musical environment with the serene confidence that the Undo function can pull you out of most frying pans. The big disadvantage is its price tag ($700 with adapter and MIDI interface).

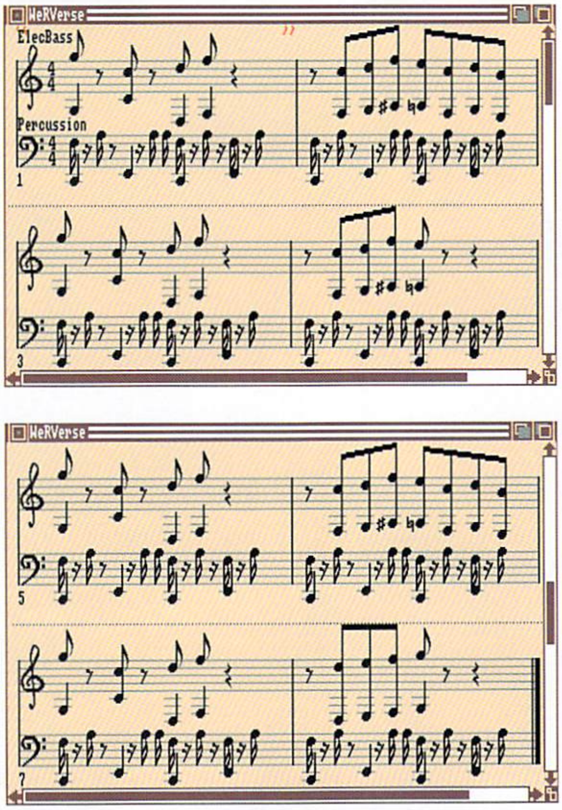


Figure 2. Verse score of "We Are Computers" song.

Figure 3. Chorus score of "We Are Computers" song.

Texture is professional sequencing at its most cogent; it's the choice of many top professionals, like Jan Hammer, who used it to compose scores for "Miami Vice." And while tape sync has been a gleam in the eye or a vapor on the wind with other manufacturers, Texture has had tape sync all along with the MPU-401 MIDI interface. Thus, the MPU justifies its $300 price tag by providing FSK tape sync, as well as a built-in metronome so you do not have to waste an Amiga voice just to hear your tempo.

The concept in Texture is simple: Notes are recorded into patterns, and patterns are linked together to create songs. With patterns, you can record short, manageable sections and then repeat them as needed to fill out a song.

So all right, Amigoids, are you ready to cut the most computerish song this side of Silicon Valley? Load up your drum kit, and let's cut some basic rhythm tracks. If you have not done so already, read through Texture's well-written tutorial section (pp. E-1 through E-8).

Sight read the score in Figure 2 (Verse) and Figure 3 (Chorus). If you cannot read music, you can lay these notes into Sonix or DMCS (DeluxeMusic Construction Set) and learn them by ear from listening to the playback. How are we going to build a complete song out of these 12 bars? We told you this song is simple; by arranging patterns in the correct order, we are going to build a 94-bar song for three full minutes of music. First, go into the sampler by hitting the front-to-back gadget in Texture and load up your ersatz drum kit. Then hit the front-to-back gadget again to get back to Texture.

Set the tempo to 135. Now look at the bottom two notes in the bass clef of the score's verse (Figure 2); this is the kick and snare part, which is a simple quarter-note boom-chuk riff. Select a quantize value►

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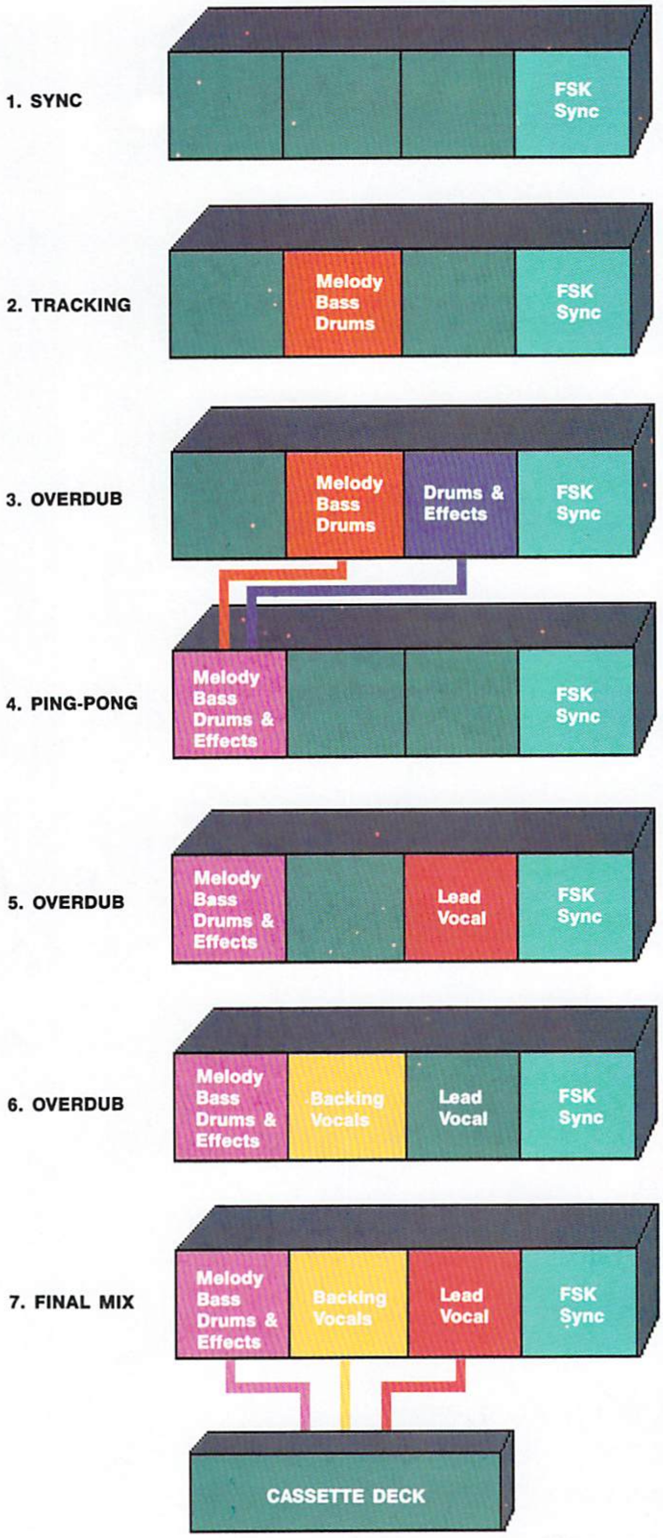
Figure 4. Four-track sequencing for recording the complete song.



of 1 (for quarter notes); then no matter how poor your timing is, every note will be moved to the nearest quarter-note value. Set the dimension to Begin:1 and End:33, using the F1 Dimension command. Why these values? Because, as you can see on your score, the verse pattern is eight bars of 4/4 time, for a total of 32 beats. When you subtract the begin value from the end value, you can see there are 32 beats.

Next select Track A. You are almost ready to record, but first unplug the Casio's MIDI In. This will avoid creating a MIDI feedback loop between the Casio and Texture, as the Thru command is passing the Casio's own notes back to itself. If your keyboard has the handy Local Off function, you can use this to shut off the feedback loop instead of unplugging the keyboard.

Tracking the Complete Amiga Orchestra With Clucks and Booms

Finally, let's make tracks. Put Track A into Record, and play the kick and snare parts. After you finish, name the track "Kick and Snare."

Next click on Track B, and name it "Cowbell Cluck." Set the quantize value to 4, which is 16th notes. Pop Track B into record and play the Cluck part, which is the top two notes in the bass clef. As this is a fairly lively part, don't feel bad if you muff it (I did). But you can choose to rerecord the part by using the tempo offset to slow down the speed. Another solution is to listen to the part you played and find a section you played correctly.

Because Cowbell Cluck repeats eight times during the pattern, if any of the eight sections (beat 1-5, 5-9, 9-13, 13-17 . . .) are correct, use the Fill command to select that section and repeat it throughout the pattern. Unlike classical music where you have to get the part right every night, with MIDI sequencing you only have to get it sort of right once. MIDI sequencing allows you to concentrate on composition instead of performance, so the budding composer can hear the flights of fancy in his or her head without having to sacrifice a lifetime learning an instrument.

Once the cowbell is clucking along contentedly, switch to Track C and assign it to MIDI channel 2. Set the Casio to MIDI channel 2, plug the cable back into the Casio's MIDI In and turn off the Thru command in Texture. Now the Casio will record and play back the melody and bass lines without MIDI feedback problems, while the Sound Sampler will play that dynamic drum track. Name Track C as the "Melody" and record the top line from the score's treble clef, using Casio Preset 8, called Synth.Bass. Label Track D as "Bass" and record the lower line in the treble clef. Again, if you have trouble getting the parts right, use the tempo offset to slow the tempo down, although the Fill function will not work here because the melody and bass patterns are 32 beats long.

Before you go any further, avert calamity by saving to disk as a pattern, called "We Are Verse." ►

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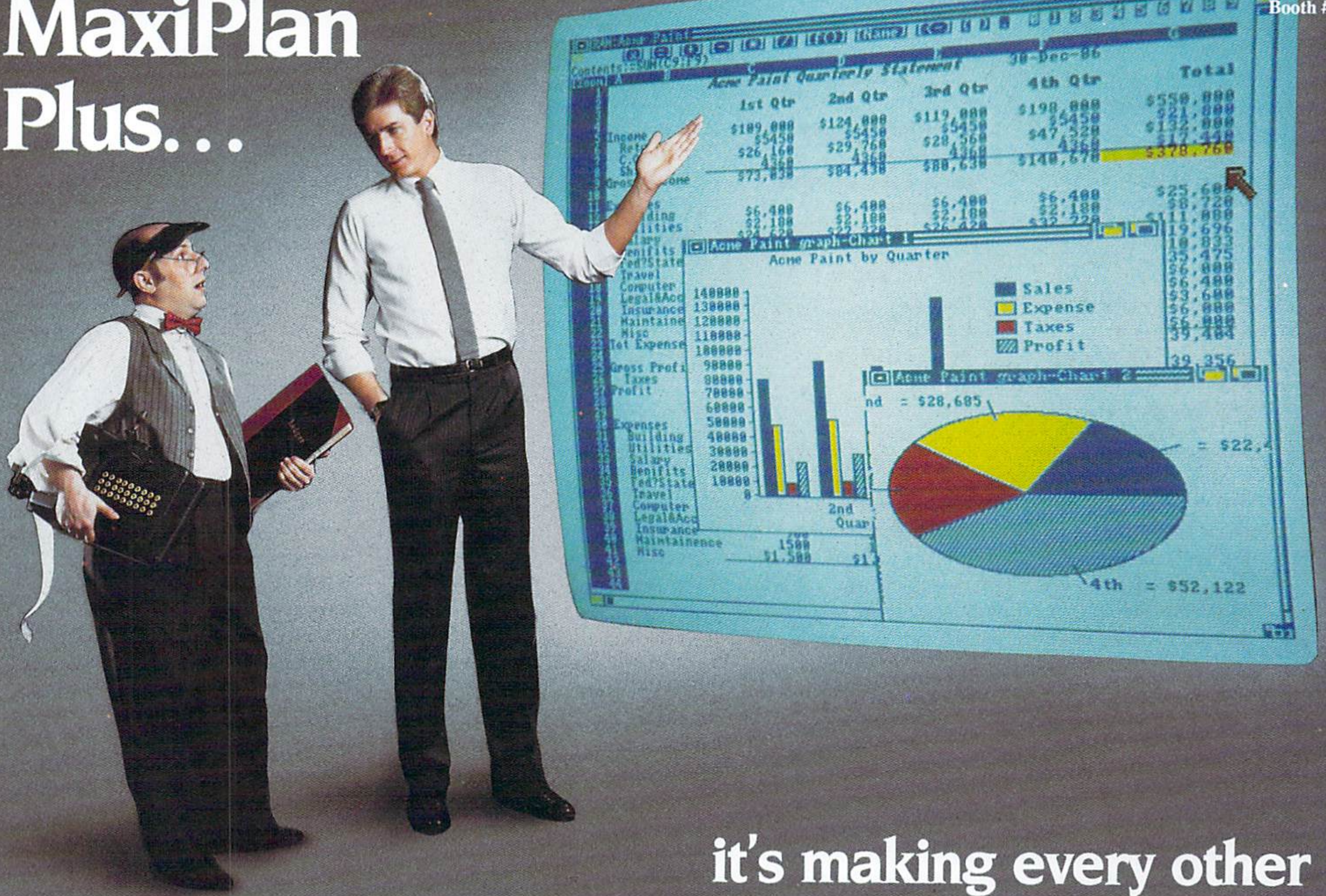

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Microverb
Alesis Studio Electronics
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MIG-AMG Adapter
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MPU-401 MIDI Interface
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213/685-5141
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SoundScape Sampler
MIDI Adapter
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PO Box 1560
Cupertino, CA 95015-1560
408/741-0117
$99 (sampler)
$49 (adapter)

Texture
Sound Quest Inc.
5 Glenaden Ave. E.
Toronto, Ontario
Canada M8Y 2L2

Now switch to Pattern 2. Notice that your MIDI track names and assignments are already set up. This is one time-saving way Texture organizes your tracks within multiple patterns. Now repeat the steps for the Verse (Figure 2) for the Chorus (Figure 3) to create Pattern 2. The only difference for the pattern is that the Chorus section is four bars long, so dimension needs to be set to Begin:1 and End:17 to create a 16-beat pattern. Save this pattern as "We Are Chorus."

Linking Up the Complete Song

Once those two patterns are jiving merrily along with happy computer noise, it's time to assemble them into a complete song. Hit Tab to enter Link mode, where you will forge the parts of the song together; a new set of function commands appears at the bottom of the screen and the Link Display replaces the Pattern Track display.

The order of the 14 links is as follows:

1,1,1,2,2,1,1,1,2,2,1,2,2,1

Set your last link to 14, and enter your link list. When you finish, you will have three minutes of computer cacophony that should resemble a song.

Now turn on your four-track and follow the instructions in Texture's manual to record an FSK sync tone to Track 4 (see Figure 4). The general rule with FSK is less is better; if you record your sync too loudly, or "hot," it will bleed over into Track 3.

Once you have recorded your sync tone, reel back to the beginning of the tape and run the output of Track 4 into the Tape In of the MPU-401. Set the sync in Texture to 2-Tape; Texture will now look for its clock signals from the FSK tone, not from its own internal clock, which makes it possible to lay multiple overdubs onto the tape machine, all in perfect sync with each other.

Now to play back the song, press Play on Texture, which will then wait to hear the tape sync tone to play the song. Sounds a bit cold and mechanical, doesn't it? So use the Aux Send on your tape machine to send the instruments out to the Microverb. Now bring up the level of the Aux Receive to hear your original sound with reverb added. Turn the Mix control on the Microverb all the way to the right to hear the reverb effect only. Flip around through the small and large halls to hear their different effects. Gate 1 and Gate 2 settings work best for percussive tracks like these that allow you to add intense reverb effects without creating a wash of mush. Choose a reverb setting you like, reel back the tape and record both the sampler's drum part and the Casio's bass and melody part onto Track 2 (see Figure 4).

Go back to the sampler and load up the percussion/special effects kit. Set the sync mode back to internal, switch to Track E, and rename it "Boom." Then you solo Track E, so all the other tracks are muted and you won't have to hear the old drum part. Lay the Boom sound (ah, that stove) down on beats 16 and 32 with a 1 (quarter-note) quantize.

Switch to Track F, unmute it and rename it "Shh." Set the quantize to 4 (16th notes) and record some harmonious shushing.

Then unmute Track G, set it to MIDI channel 2 and use the CZ internal percussion sound (Preset 16) on Track G to play in some snappy rhythms. Or create a custom percussion patch, with the help of a CZ Editor/Librarian like C-Zar. (Programs such as this let you see all the disparate elements that make up a synth sound to help you create sounds more quickly and easily.)

To lay this next set of sonic nonsense to Tape Track 3 (see Figure 4), enter Texture's Song mode, press Play, and dial up a reverb sound. The reverse reverb, or small rooms 1, 2 and 3, will give this section a catchy, quirky feel. Switch back to tape sync and record this track just as you did the first one.

Bring on the Supremes

For the crowning glory to this orchestral recipe, it's time to add the vocals. The song requires a lead and backing vocal, but one small problem looms large: ►

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We only have one tape track open. Consult your four-track manual on how to perform "ping-ponging" to submix two tracks together; then ping-pong the synth, drum and effects tracks from Tracks 2 and 3 onto Track 1 (see Figure 4). Now you can erase the original Tracks 2 and 3 to make room for your vocals. The vocal line is absurdly easy to sing. You sit out the first eight bars, then begin singing Verse 1 from the lyric sheet (see the "We Are Computers" sidebar) to the tune of the synthesizer line, matching one syllable per note. Then do the same for the Chorus, with just one exception to the one-note-one-syllable rule: In "We are tailor-made for corporations," the word "are" is held for two notes. Sit out eight bars again and sing the second verse and chorus. Sit out eight more bars and repeat the chorus one more time. Assuming you have done everything right, the Amiga should churn out eight more mellifluous bars and end. Record the lead vocal first on Track 3 (see Figure 4) with the reverb set to a large room setting to make your voice sound full and rich.

It is best to monitor your instrumental backup through headphones so that you do not rerecord the other instruments onto your vocal track. Now gather all your friends and family or enlist the aid of your Amiga users' group to add a smashing backing vocal to the chorus. Arrange everyone in a semicircle around the microphone and play them the song over speakers to learn the chorus. Then turn the speakers off, or way down low, as you conduct your giddy group through all three choruses. Record the backing vocals on Track 2 (see Figure 4).

All that remains to bring a happy ending to this fun ordeal is the final mixdown. Put the four-track into playback mode, slap a cassette into your cassette deck and set a good level where all three tracks can be heard well. Adjust your levels so everything sounds in balance and mix the four-track song down to the stereo cassette deck (see Figure 4), using the Aux setting on your receiver. If your receiver does not have an Aux, simply plug the Master Out of the two-track into the Line In of your cassette. As a last resort of the most primitive kind, you can mix down to a boom box with no line inputs by holding it in front of your speakers and pressing Record.

If you've made it through all this MIDI madness, you are now a certified MIDIot; so turn on your avant-garage computer band in your Animatin' Amiga music studio, and tune in to a Brave New MIDI World of artful noise. ■

Ben Means is a recording engineer, producer and songwriter and has his own 12-track recording studio. Jean Means writes and has her own public relations and promotion firm. Write to them c/o AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

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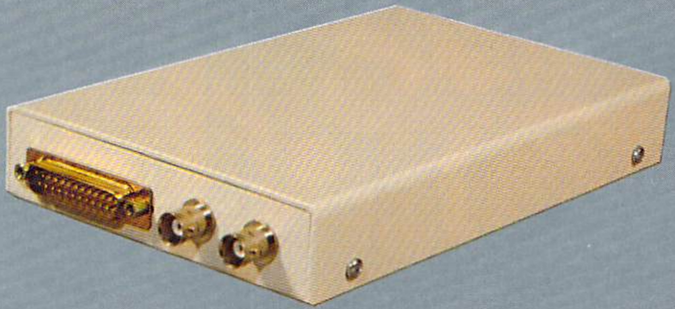

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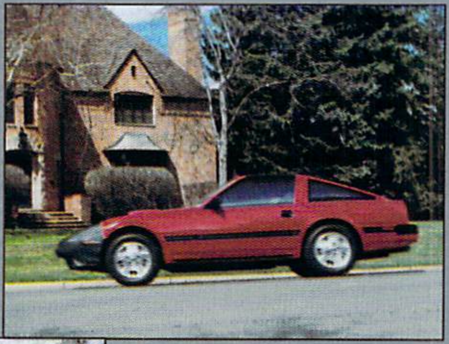

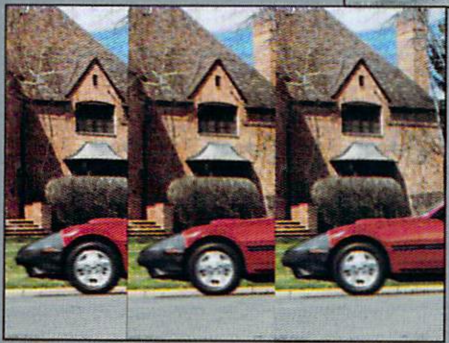

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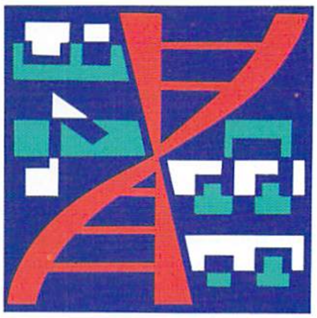
A BUYER'S GUIDE TO MUSIC PRODUCTS

by PEGGY HERRINGTON

ILLUSTRATED BY JEAN TUTTLE

From sound samplers to synthesizers to songwriting software, this handy capsule guide will help you get a grip on the Amiga music scene.

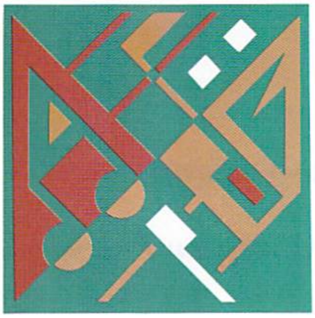


WHETHER YOU'RE DOING sound-tracks for videos, sequencing in your MIDI studio, or simply "playing" around, the over 100 Amiga music products covered here are ready to perform. To help you decide what does what, this guide provides information you won't find on the boxes. And remember that because the quality of Amiga-generated sound is superior to that of other personal computers, many of these programs play it right along with sounds from MIDI-connected synths—DeluxeMusic, Sonix, Dynamic Studio, and SoundScape, to name a few—with the primary distinction among them being your preferred method of getting music into memory.

Except where noted, all programs will multitask—although running two of any significance requires more than 512K of memory. Musical timing requirements are stringent, so if you want to stay in step, don't plan on sorting a database while you're playing heavy metal.

The guide is organized into 10 categories (see the Index box for headings). Each individual entry contains the product name, manufacturer, price, and a brief description. Consult the "Company List" (organized alphabetically by manufacturer) at the back of the guide for further information about contacting particular manufacturers. A sidebar to the article, "Coming Attractions," presents information about some soon-to-be-released items that were not available at press time. ►

Composition Software



DELUXEMUSIC CONSTRUCTION SET Electronic Arts / $99.95 A winner if you're into standard music notation. DMCS is the only Amiga note editor offering more than a grand staff. Provides up to eight staves with three clefs. Plays SMUS-compatible scores using IFF-digitized samples on the Amiga, and up to 32 MIDI voices simultaneously (16 channels, step-time MIDI entry). Flexible mouse or Amiga keyboard note entry with instruments, time, and key signatures changeable only at bar lines. Lets you control amplitude and shaping of sound envelopes but not create instruments. Prints parts or full scores with lyrics, guitar tablature, and music symbols. Hundreds of user-created music files available on line.

DRUM STUDIO Digitek / $49.95 Not Intuition-based (no multitasking, mouse, or pull-down menus), but still an attractive and enjoyable percussive composition program. Lets you jam or record patterns in real time with four IFF sounds from the function keys and keypad—while the power light flashes as a metronome. 20 sounds, 100 patterns, and 10 songs in memory. Definitely hobby material.

DYNAMIC DRUMS New Wave Software / $79.95 Turns your Amiga into a software-based drum machine using IFF digitized samples. 200 tunable percussive sounds available, provided that you organize into drum kits and record in sequences from the numeric keypad. Surprisingly musical and fun. Dynamic Drums is incorporated into Dynamic Studio (see "MIDI Sequencers" section).

HOT LICKS Infinity Software / $39.95 An attractive onscreen keyboard synthesizer with tape recorder-like controls. You enter SMUS-compatible four-part music from the Amiga's keyboard (which is reconfigured into rows of imaginary black and white keys). Durations are entered separately with editing done in a buffer, using cut and paste; no music notation. Stores 20 IFF-digitized sounds in memory. Allows you to play in live jam mode by replacing an instrument in a score or by using rhythm templates. Includes a script-based jukebox song player. More fun than serious.

INSTANT MUSIC Electronic Arts / $49.95 *The* program for instant musicians. Get instant gratification when you jam with prerecorded SMUS-compatible scores by "playing" the mouse—freehand or with user-selectable program templates that lock it into tonal centers and rhythms so you can't make a musical boo-boo. Colorful and entertaining. Switch parts and IFF-sampled instruments, recording four-part quickies for editing with DeluxeMusic. Notation is done with color-coded bars, but all else is based on solid music theory. Experienced musicians can try their hands at creating templates.

THE MUSIC STUDIO Activision / $49.95 Beautiful displays of not-quite standard music notation color-coded to instruments. Functionally, however, weakest of the note editors; will not alter tempo, key, or time signatures within a composition. Plays up to 15 simultaneous notes (four Amiga) with 16-channel MIDI-Out, and each note can be a different sound. Separate screen shows music in block "notation" that can be swapped with the main composition screen. Create instruments with mouse-alterable graphics by dragging overtones. Converts and saves SMUS scores via an external utility and offers rudimentary score printing. Requires Workbench V1.1 and does not multitask reliably.

MUSICMOUSE Opcode Systems / $79.95 Turns your Amiga into an "intelligent musical instrument" by continuously producing up to four instrument sounds (IFF samples or MIDI voices) in a multitude of patterns, scales, and tempos determined by parameters you control live from the Amiga keyboard. Pitch relationships between instruments are governed by mouse movement. Definitely more fun than it sounds and it *does* require musical expertise. MusicMouse would benefit from feedback about settings (I have trouble re-creating them even when I write things down). Save "compositions" with a tape deck or by multitasking with DMCS or ProMIDI Studio (see "MIDI Sequencers" section), which requires expansion RAM.

SONIX Aegis Development / $79.95 Produces superior Amiga sound-quality because of its proprietary "RFF" instrument format. Is the most interactive of the note editors. Jam with great Amiga-synthesized instruments (created with Sonix or AudioMaster) and IFF-digitized sounds *live* by "playing" the Amiga keyboard. Music notation, however, does not compare for accuracy with DMCS, nor will Sonix move through a score on screen as it plays. Has 16-channel MIDI-Out, an on-screen "mixer" for relative amplitude control, and SMUS score printing. Utility programs for free-standing play of Sonix scores and instruments (PLAY.PAK) and for disabling the low-pass filter in the A500/2000 to get "brighter" sounds (LED.ARC) are available on line.

Song and Instrument Data Disks

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BIG DOLLAR SYNTHS WaveTable Technologies / 18.50 Stunning samples of studio-quality synthesizers, available in IFF, Mimetics, and Music Studio formats.

COMPOSER DISKS (VOLS. 1,2,3) WaveTable Technologies / $18.50 A dynamite collection of instruments (30 per disk) in Sonix "RFF" file format.

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GRAB BAG E.C.T. Sampleware / $24.95 Interesting collection of what seems to be leftovers from E.C.T.'s sampling sessions. IFF and Mimetics formats.

HOT & COOL JAZZ Electronic Arts / $29.95 Four-part songs and IFF digitized instruments for use in DeluxeMusic or Instant Music. Accompanying booklet gives stylistic history of jazz coordinated with musical examples. Nice to have for the instruments alone.

I.M.INSTRUMENTS Actionware / $20 30 interesting acoustic instrument samples in IFF format.

INSTRUMENT DISKS WaveTable Technologies / $18.50 Four individual packages (one instrument per) of clean, crisp samples of B-3 Organ, steel drums, Mellotron, and brass instruments. IFF, Mimetics, or Music Studio formats.

IT'S ONLY ROCK 'N ROLL Electronic Arts / $29.95 Same as Hot & Cool Jazz (above) but focuses on American jazz.

ORCHESTRAL DISK E.C.T. Sampleware / $24.95 Samples of orchestral instruments in IFF or Mimetics file formats, including chords that play on one sound channel.

ROCK DISK E.C.T. Sampleware / $24.95 Sampled guitars, percussion, and synths in Mimetics or IFF formats.

SOUND EFFECTS LIBRARY Karl R. Denton Assoc. / $99.95 A collection of six disks of digitized sound effects. No musical instruments, but just about everything else: screams, machines, nature sounds—the works, in IFF one-shot format.

MUSIC PLAYERS

DNA MUSIC Silver Software / $19.95 Musical novelty that does music and graphics displays based upon DNA molecular structures(!) Written in BASIC (as are all Silver Software programs) by a musical biochemist.

FRACTAL MUSIC Silver Software / $19.95 Makes four-part Amiga-generated music and, with simple graphics, displays based upon fractal math.

MIDI MAGIC MUSIC DISKS (3 VOLS.) Micro W / $19.95 Play-only collections of four- and six-part music from QRS music rolls, some of which were written by famous composers ("Rhapsody In Blue," for instance). MIDI interface and synthesizer required.

PLAY.PAK (Shareware) / $25 A shareware utility that plays Sonix-created "RFF" instruments and SMUS music files, using scripts or icons, either singly or one after the next like a jukebox. Available on networks and many boards for a voluntary contribution to Sonix' author Mark Riley.

PROTEIN MUSIC Silver Software / $19.95 A biochemist's BASIC music-generation program based upon 20 amino acids. (Honest!)

SYMPHONY LIBRARY (VOLS. 1-8) Speech Systems / $39.95 Eight disks, each containing over 100 four-part SMUS-format songs covering every kind of music imaginable, from classical to contemporary. Can be played by the Amiga (IFF samples included) or from MIDI-connected synths, or both at once. Scores editable in DeluxeMusic.

SYMPHONY SONGS Speech Systems / $24.95 Almost an hour of preprogrammed auto-play symphonic SMUS music in four-part IFF format.

WAVEFORM EASEL Silver Software / $19.95 A BASIC program for creating synthesized Amiga sounds.

VISUAL-AURALS Visual Aural Animation / $169 One-of-a-kind hardware/software combo producing seemingly unlimited, colorful (sort-of user controlled) on-screen graphics based on sound input (voice, radio, and so forth). Plugs into second mouse port, input jacks, and adjustment knobs.

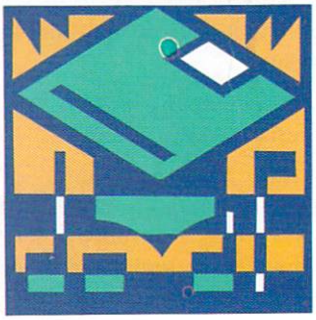
SAMPLE EDITING SOFTWARE

AUDIOMASTER Aegis Development / $59.95 If you have Sonix, get AudioMaster fast! With it, you can alter Sonix, Mimetics, and IFF sounds by adding reverb and echo effects, among others. More importantly, used with a hardware digitizer, AudioMaster gets past the Amiga's 512K "chip" data limitation, permitting sampling and playback—in real time—of sounds in RAM expansion. Impressive AudioMaster-created music files are available on line.

STUDIOMAGIC SunRize Industries / $99.95 Edits IFF samples, allowing you to play them (along with MIDI-produced sounds) from the keyboard of an optional MIDI-connected synth, splitting it into sections (a neat feature). Used in place of PerfectSound digitizer software, StudioMagic offers velocity, sensitivity, and a simple music sequencer with overdub. Sample editing includes amplitude modulation, interpolation, rescaling, compression and expansion, comb filtering, printable Fast Fourier Transforms, and Undo. ►

SYNTHIA The Other Guys / $99.95 Five separate modules for creating and editing IFF sounds using Additive, Plucked String, Interpolative, Percussive, and Subtractive synthesis. (Implement the defaults in that order to make a Hendrix-type guitar.) Great special effects, detailed instructions, and a compact IFF player for listening to SMUS music files that would otherwise require expansion RAM.

AMIGA TUTORIALS



DYNAMICS Robert Shannon / $39.95 Light-hearted tutorial for using and composing with DeluxeMusic. Some theory and notation reading, lots of examples, humor, and original music. $59.95 on video tape.

MUSIC STUDENT I AND II Associated Computer Services / $59.95 Learn the fundamentals of music (sight reading, symbol recognition, and aural development) with emphasis on keyboards. May be used independently (ages 6 and up) or in class setting in conjunction with ACS's Quiz Master program. Haven't seen the second volume, but the first doesn't employ sound (Amiga-generated or otherwise).

SOUND SAMPLERS (DIGITIZERS)

FUTURESOUND Applied Visions / $175 Connects to the parallel port with a ribbon cable and offers a pass-through printer connector that toggles. Also includes a line input jack and small Radio Shack microphone. Its software is the most flexible and detailed provided with a digitizer—allowing you to vary sampling rates, to combine and swap sections of four resident samples, to graph soundwaves, and to add certain effects. Routines included for playing samples from BASIC.

PERFECTSOUND SunRize Industries / $89.95 Connects directly to the parallel port (no pass-through), providing left- and right-channel RCA line inputs with mic input through a pre-amp. Variable sampling rate to 25kHz with adjustable gain and waveform graphing. Holds 15 IFF samples in memory, playable by octave from the function keys. Editing includes chopping, inserting, appending, stereo merge and break up, compressing, and changing the period. Dozens of neat samples provided. StudioMagic software may be used.

SOUNDSCAPE DIGITAL SAMPLER Mimetics / $99 Plugs into the second mouse port with mini phone-jack for mic (pre-amp required) and RCA connectors for line input. Variable sampling rate for digitizing sounds in IFF format with 32K maximum length. Adjustable loop start/end with points set automatically at zero crossings. Saves in IFF or Mimetics file format, the latter offering a four-segment ADSR and the ability to store a new sample in each of 10 octaves or to translate between them. Nice automatic recording level and threshold features.

MIDI EDITOR/ LIBRARIANS

C-ZAR Deimer Development / $195 Casio CZ-101/1000 editor/librarian multitasks with RAM expansion. Graphics-based harmonics alteration with point-and-drag, on-screen knobs and switches or keyboard entry. Saves sounds in banks. Colorful, mouse-driven, dozens of patches provided.

DATAFILER Triangle Audio / $99 Four modules (in separate windows) for designing and swapping sounds on the Yamaha FB-01: librarian/editor (two banks of 48 sounds each, graphic editing of algorithms); five-octave on-screen MIDI keyboard for auditioning; MIDI In to Out (saves swapping cables); and a module for printing text.

DR. T'S EDITOR/LIBRARIANS Dr. T's Music Software Caged Artist editor/librarians are text-based and designed to multitask with MIDI programs like Dr.T's KCS and MRS (see "Coming Attractions" sidebar). Function-key-driven with on-screen menus, they offer mouse point-and-drag ADSR editing, ramdomizing parameters while masking out others, undo, and text-based printing. Nicely customized for a particular synth. More are under developoment, along with sound libraries. Those now available are:

4-OP Deluxe / $149
Yamaha TX81Z/FB-01/DX100/21/27De'-50 / $149
Roland D-50/550 D-50 Voices (sound library) / $49
DX/TX-Heaven / $149
Yamaha DX-7 and TX-7 DX-Voices (sound library) / $49
ESQ-Apade / $149
Ensoniq ESQ-1 and ESQ-1M ESQ-Voices (sound library) / $49
Kawai K5 Editor / $175
Kawai K5Matrix-6 "Tricks" / $149
Oberheim Matrix-6/6RMT-32 Editor / $149
Roland MT-32 MT-32 Voices (sound library) / $49
Lexicon PCM-70
PCM-70 Editor / $149

SOUNDQUEST EDITOR/LIBRARIANS SoundQuest Attractive, functional series programmed on the Amiga (which isn't always the case). Modular with graphics editing screens and ►

ACTIONWARE™
The Ultimate Action Adventures
Go ahead...
Make Your Day!
Now you can shoot the bad guys with this real-time action shoot-'em-up adventure. Just connect the Actionware PHASER™ to the game port (or use your mouse) and you're ready to combat evil in an exciting action packed world!
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In Illinois (312) 879-8998
VISA/Master Card accepted
CAPONE
P.O.W.
CREATURE
Actionware Corporation
38 W 255 Deerpath Road Batavia, Illinois 60510
Circle 7 on Reader Service card.
AVAILABLE ONLY FOR THE AMIGA WHICH IS A TRADEMARK OF COMMODORE-AMIGA

real power. Recommended with Texture II. Others on the way. Master Series of Editor/Librarians Include:

Roland D50 / $150; Roland MT-32 / $150
Yamaha DX7 / $150; Yamaha DX7 II / $175
Yamaha TX81Z, DX100, DX27, DX21 / $125
Casio CZ / $125
Ensoniq SQ80-ESQ / $150

SOUND LAB Blank Software / $299.95 Pro editor/librarian for Ensoniq Mirage. Design, edit, and play sounds for this digitial sampling keyboard on the Amiga. Graphics-oriented and only about a megabyte easier than Ensoniq's keypad/ LED method.

XPRESS PATCH-FM Digitools / $24.95 Modular Yamaha FM synthesis editor/librarian.

MIDI DATA AND UTILITY DISKS

BACH SONGBOOK Dr. T's Music Software / $29 Delightful preprogrammed Bach in Dr. T's KCS/MRS formats: 15 two-part Inventions, 3 three-part Sinfonia, and 2 four-part Fugues. Listen or take apart for use in your own compositions.

DR. DRUMS Dr. T's Music Software / $29 Hundreds of MIDI drum machine patterns, fills, and solos in KCS/MRS formats. Use with any of Dr. T's MIDI composition programs allows you to incorporate these dynamite licks in your own music.

DR. KEYS Dr. T's Music Software / $29 Preprogrammed MIDI keyboard progressions in various styles, including rock, jazz, blues, and classical. Play and alter with Dr. T's KCS/ MRS composition software.

PATTERNSPLATTER Mimetics / $49.95 SoundScape module that creates and layers random arpeggios and chords within definable ranges. MIDI channel assignments with programmable arpeggiation and control of pattern cycle times and offsets. (Great fun to play around with.)

UTILITIES 1 Mimetics / $49.95 Eight SoundScape modules: MouseBender (mouse input for pitch bend and other effects), SystemX (Sys-Ex MIDI librarian), Mapper/Splitter (maps and transforms data, useful for splitting keyboards), Clock Scaler (timing for such external MIDI devices as a drum machine), Fuel Gauge (memory management), FrameCounter (makes "hit list" for coordinating visual and aural events), SmoothClocker (improved MIDI clock), and Install Modules (permanently installs modules in SoundScape). Last two available as public-domain files on line.

UTILITIES 2 Mimetics / $49.95 Eight more SoundScape modules: Echo (add echos, repeats, and slapback effects), Velocity Bender (change the amplitude of a track), Viewer (control display of HAM-graphics screens), Scope (displays incoming MIDI data), Slicer (quantizes incoming timing values), Beats/Measures (displays location), and Install Modules (in SoundScape). Echo and Slicer also available on line.

MIDI INTERFACES

E.C.E. MIDI INTERFACE E.C.E. Research & Development / $44.95 MIDI In, Out, and Thru for A1000; $59.95 for A2000/ 500. Equipped with pass-through and toggle switch for modem or printer.

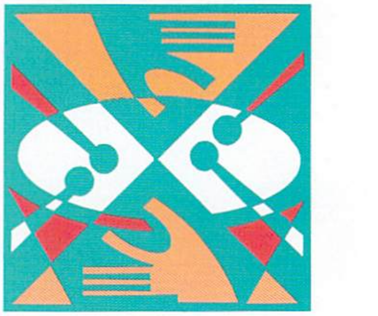
MIDI GOLD Golden Hawk Technology / $79 Provides serial pass-through for modem or printer; MIDI In, two Outs, and Thru.

MIDI CONNECTION Speech Systems / $39.95 One each MIDI In, Out, and Thru.

SKYLES MIDI INTERFACE Skyles Electric Works / $49.95 MIDI In, two Outs, and a Thru for A1000. $59.95 for A500/ 2000.

SOUNDSCAPE MIDI INTERFACE Mimetics / $49 Tiny unit for all Amiga models; MIDI In, Out, and Thru connectors.

MIDI SEQUENCERS



ADRUM Bullfrog Productions / £39.95 (sterling) Software-based drum machine that plays four of twenty-six resident percussive IFF samples with 16-channel MIDI In and Out, much like Dynamic Studio (see below). The dry (and occasionally inaccurate) British humor in the manual ("Amiga WIMP System"?) was amusing until the second program crash. Intuition-based with real-time note entry and attractive display. Looks fairly functional apart from the crash problem.

DYNAMIC STUDIO New Wave Software / $199.95 At last! A MIDI sequencer using the Amiga as a drum machine with MIDI-connected synths doing melody and harmony. Provides 200 percussive IFF-digitized samples, 16 tracks, up to 64 sequences, MIDI In and Out with metronome.

Drum sequences entered from the numeric keypad on neat, attractive screens with text or "piano-roll" note editing and a MIDI librarian for SYS EX data. Optional sync to external drum machine, records pitch-wheel and velocity data when supplied and can disable the low-pass filter on the Amiga 500 or 2000. A great little sequencer.

KEYBOARD CONTROLLED SEQUENCER (KCS) Dr. T's Music Software / $225 The heart of Dr. T's line, KCS V1.6 is a professional-quality sequencer despite (or maybe because of) its alphanumeric appearance. Dependable timing (optional sync to drum machine),►

New from SunRize Industries

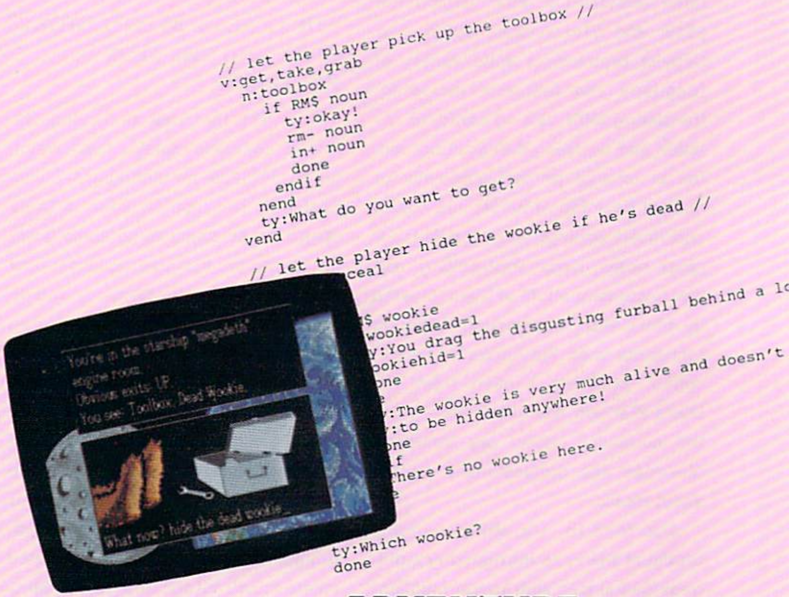
Actual picture digitized with Perfect Vision and Color Splitter from a VCR.

ELECTRONIC COLOR SPLITTER MAKES RGB WHEEL OBSOLETE

Device takes the place of RGB wheel to capture color video from camera. Also gives you the ability to capture color video from VCR. Unit has RGB selector switch (for Digi-View users). With Perfect Vision, pictures are captured automatically in 1.5 seconds. Digi View takes 60 seconds and may not be compatible with some VCRs. **SUGGESTED RETAIL PRICE: $99.95**

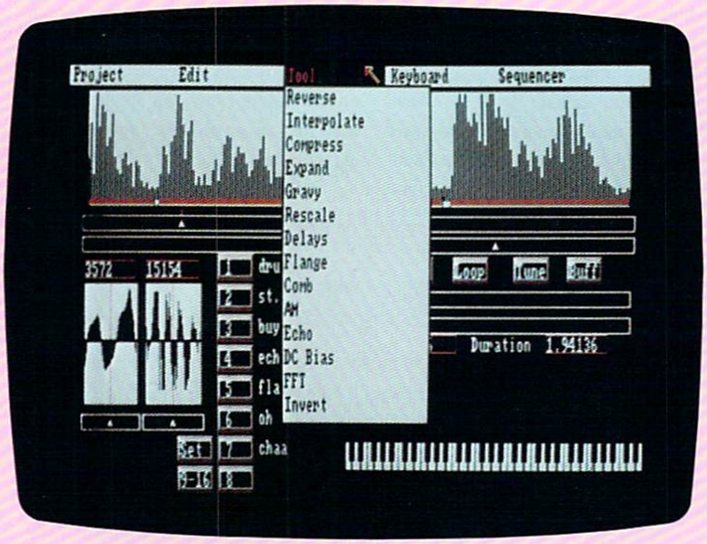
PERFECT VISION

Capture pictures from a video camera or VCR. Display in color or store as IFF for use in compatible programs. Real time B&W images (1/60 second). Color images require a bit more time. Unit includes its own power supply and fine tuning adjustments for contrast and brightness. Compatible with model 500, 1000 and 2000 Amigas. **SUGGESTED RETAIL PRICE: $249.95**



ADVENTURE WORKSHOP

A totally new idea in games: write your own adventures in an easy to learn adventure language. You create the sequences and the consequences. Your finished games can be saved and run again or traded to a friend. Comes with two complete games ready to play, manual with examples and suggestions, starter set of IFF icons (weapons, creatures, backgrounds), digitized sounds, everything you need to become a master game maker. **SUGGESTED RETAIL PRICE: $59.95**



STUDIO MAGIC

The ultimate music and sound workshop with 12 digital effects including echo, delay, flanges, etc. Input sounds from stereo, VCR or microphone (with Perfect Sound interface) or a keyboard (with MIDI interface). Edit (cut, paste, overlay, etc.) digitized sounds using menu driven tools. Compatible with model 500, 1000 and 2000 Amigas. **SUGGESTED RETAIL PRICE: $99.95**

SunRize Industries
3801 Old College Road
Bryan, TX 77801
(409) 846-1311.

Circle 157 on Reader Service card.

Coming Attractions

Products mentioned here were not officially on the market at press time and, therefore, were not included in the main buyer's guide. Most, however, had fairly extensive pre-release dossiers from which to gather a clear picture of what they will be offering to the Amiga music scene. Contact the manufacturers mentioned here for further information (see the main "Company List" for addresses and telephone numbers).

The program with perhaps the most potential significance for serious musicians is The Copyist from Dr. T's Music Software. Available in three versions (Jr., $99; Version 1.5, $249; and Professional, $399), The Copyist promises a wide variety of functions and features, including: translating MIDI data to standard notation and dumping it to your dot matrix or laserjet printer; automatic or manual beaming of notes; cut, paste, and insert editing; and providing for grace notes, lyrics, font editing, and the accommodation of files created by other MIDI sequencers. Although I have not seen the Amiga Copyist in action, printouts I have from the Doc's IBM and Atari versions—which the company claims are comparable—look like professionally printed sheet music.

Also from Dr. T's: MIDI Recording Studio at $49 is an introductory eight-track sequencer with range highlight editing supporting the Amiga's four internal sound channels, as well as MIDI synthesizers. It is compatible with Fingers ($79), an interactive composition and performance tool (that will also work with the Dr. T's KCS core) generating up to four simultaneous lines of music with which you can interact as it plays. All of Dr. T's products mentioned here should be available as you read this, including the Level II Keyboard Controlled Sequencer ($325), to which, like all of Dr. T's line, you can upgrade for the difference in price between the older and newer products.

The Case of M, the Story of X, and the Mad Professor

If you like the idea of having the Amiga compose music, then watch out for M ($200) from Intelligent Music Systems. You help M along in three stages by first specifying some basic notes and chords, then telling it how you want them transformed, and finally performing by manipulating screen controls or a MIDI-connected synthesizer or by "conducting" with the mouse in a multidirectional cyclic grid. M also plays the Amiga's internal sounds and will let you save compositions to disk for further development or use in other programs. Although computer-generated music hasn't hit the Top 40 yet, Macintosh and Atari compositions by M have received rave reviews in music publications.

Single-letter names are "in" as evidenced by Music-X, full-featured MIDI software coming soon—along with other musical goodies—from MicroIllusions. A real-time sequencer and note editor (not, however, using standard music notation), Music-X is comprised of several screens, including one with tape-recorder-like controls for recording and playback (with a resolution of 192 clocks per quarter note), an editing page for defining MIDI keyboard layouts and arranging Amiga sampled sound play, and built-in MIDI librarian and patch editor that can be configured for virtually any MIDI synthesizer (providing you can figure out how, of course, but as user-created configurations may be freely traded, they should be available on line soon after the now-imminent release of Music-X). Also in the works is Micro MIDI, Micro-Illusion's MIDI interface featuring six outputs (switchable as Out, Thru, or Off), two switch-selectable inputs, a serial pass-through port, channel-loading indicator, and external clock output for synchronizing older, non-MIDI drum machines. Completing MicroIllusions' music line is Micro SMPTE, a parallel-port interface with pass-through allowing synchronization of Music-X's output (music, remember?) with video and audio tape decks.

Finally, we have a product that's as much concept as anything else: the Piano Professor Music Education System (around $100). Consisting of four parts—hardware LED (Light-Emitting Diode) strip, software, text book, and video tape—the Piano Professor functions *fully* on a genlock-equipped Amiga (although it can be used in sections). The idea is to teach you how to play a (MIDI-connected) keyboard. Tests conducted in the Professor's studio (music teacher and doctoral candidate) have shown that through using this system, adults with no musical background have learned to play the first four measures of Mozart's C Major Sonata or Bach's C Major Invention in less than three hours, while learning-disabled students have been able to play the first section of Für Elise after only about an hour. The "trick" is using a strip of LEDs placed on the keyboard that are lit up individually by the software (which also puts standard music notation on the screen), telling you which keys to press when. Furthermore, a camera and genlock can digitize images of your hands inside outlines on a keyboard pictured on the screen; imagine the impact of this on an over-sized screen in a classroom. □

PH

holds up to 16 songs plus a huge quantity of sequences. Real-time or mouse-controlled step-time entry of notes, durations and velocities, 48-track tape recorder mode, mouse or keyboard editing of all parameters with undo, punch in/out, aftertouch, variations generator, and more. Multitasks with Dr. T's editor/librarians and printing utilities (see the "Coming Attractions" sidebar), but does not use Amiga-generated sound or pulldown menus. Extensive manual with tips. Operates the same as IBM and Apple versions. Best for the serious musician.

THE MANDALA Very Vivid / $395 Interactive MIDI-performance software that, with a video digitizer (Live! by A-Squared, for example) and camera, enables on-screen graphics, such as traditional musical instruments, to be "played" by movement of on-screen digitized images—your hands hitting drums, for instance. Plays IFF sounds and MIDI-connected synthesis. Claims powerful graphics editing and optional mouse/keyboard control of interactions for other applications, but I can't testify to these, as I've only seen The Mandala in action at trade shows.

PROMIDI STUDIO (SOUNDSCAPE) Mimetics / $179.95 Modular environment for sequencing four-part Amiga-generated music (IFF or proprietary format) with or without MIDI synthesis. 16 MIDI channels with transposition, sync to internal (2 to 240 BPM) or external clock, MIDI song pointer with number of tracks being memory dependent. On-screen tape-deck-like controls, piano keyboard, number-based sequence and song editing with punch in/out, merge, match, split, and bounce tracks. Accommodates such modules as those on the Utility Disks and Pattern Splatter (see "MIDI Data and Utility Disks" section) and MusicMouse (see "Composition Software" section). Digital sampling software built-in (handy if you have the hardware). Instructions are inadequate, but SoundScape is a professional-quality powerhouse if you can figure out how to use it. ►

Company List

Actionware
1039 Farmington Ave.
West Hartford, CT 06107
203/233-0151

Activision
PO Box 7286
Mountain View, CA 94039
415/960-0410

Aegis Development
2210 Wilshire Blvd.
Suite 277
Santa Monica, CA 90403
213/392-9972

Applied Visions
1 Kendall Sq.
Suite 2200
Cambridge, MA 02139
617/494-5417

Associated Computer Services
1306 East Sunshine
Springfield, MO 65804
417/887-7373

Blank Software
1034 Natoma St.
San Francisco, CA 94103
415/863-9224

Bullfrog Productions
Distributed in U.S. by:
Haitex Resources
208 Carrollton Park, Suite 1207
Carrollton, TX 75006
214/241-8030

Deimer Development
12814 Landale St.
Studio City, CA 91604
818/762-0804

Digitek Inc.
10415 N. Florida Ave.
Suite 410
Tampa, FL 33612
813/933-8023

Digitools
PO Box 7417
Buffalo Grove, IL 60089

Dr. T's Music Software
220 Boylston St.
Suite 306
Chestnut Hill, MA 02167
617/244-6954

E.C.E. Research & Development
1651 N. Monroe St.
Tallahasse, FL 32303
904/681-0786

E.C.T. Sampleware
PO Box 36
Sierra Madre, CA 91024
408/741-0117

Electronic Arts
1820 Gateway Dr.
San Mateo, CA 94404
415/571-7171

Golden Hawk Technology
427-3 Amherst St.
Suite 389
Nashua, NH 03063
603/424-0269

Infinity Software
1144 65th St.
Suite C
Emeryville, CA 94608
415/420-1551

Intelligent Music Systems Inc.
PO Box 8748
Albany, NY 12208
518/434-4110

Karl R. Denton Associates
PO Box 56
Westland, MI 48185
313/522-0939

Magnetic Music
RD #5
Box 227A Myrtle Dr.
Mahopac, NY 10541
914/248-8208

Micro W
PO Box 198
Butler, NJ 07405
201/838-5606

MicroIllusions
17408 Chatsworth St.
Granada Hills, CA 91344
800/522-2041

Mimetics Corp.
PO Box 1560
Cupertino, CA 95015-1560
408/741-0117

New Wave Software
PO Box 438
St. Clair Shores, MI 48080
313/771-4465

Opcode Systems
1024 Hamilton Court
Menlo Park, CA 94025
415/321-8977

Piano Professor
144-46 72 Ave.
Flushing, NY 11367
718/544-2362

Robert Shannon
741 East #305
Woodland, CA 95695
916/622-9591

Roland Corp. US
7200 Dominion Circle
Los Angeles, CA 90040
213/685-5141

Silver Software
77 Mead St.
Bridgeport, CT 06610
203/366-7775

Skyles Electronic Works
231 S. Whisman Rd.
Suite E
Mountain View, CA 94041
800/227-9998
415/965-1735

SoundQuest
5 Glenaden Ave. E.
Toronto, Ontario
Canada M8Y 2L2
416/234-0347

Speech Systems
38 W. 255 Deerpath Rd.
Batavia, IL 60510
312/879-6811

SunRize Industries
3801 Old College Rd.
Bryan, TX 77801
409/846-1311

The Other Guys
PO Box H
Logan, UT 84321
800/942-9402
801/753-7620

Triangle Audio Inc.
PO Box 1108
Sterling, VA 22170
703/437-5162

Very Vivid Inc.
1499 Queen Street W. #302
Toronto, Ontario
Canada M6R 1A3
416/537-7222

Visual Aural Animation
PO Box 4898
Arcata, CA 95521
707/822-4800

WaveTable Technologies
1647 Willowpass Rd.
Suite 267
Concord, CA 94520
415/947-0689

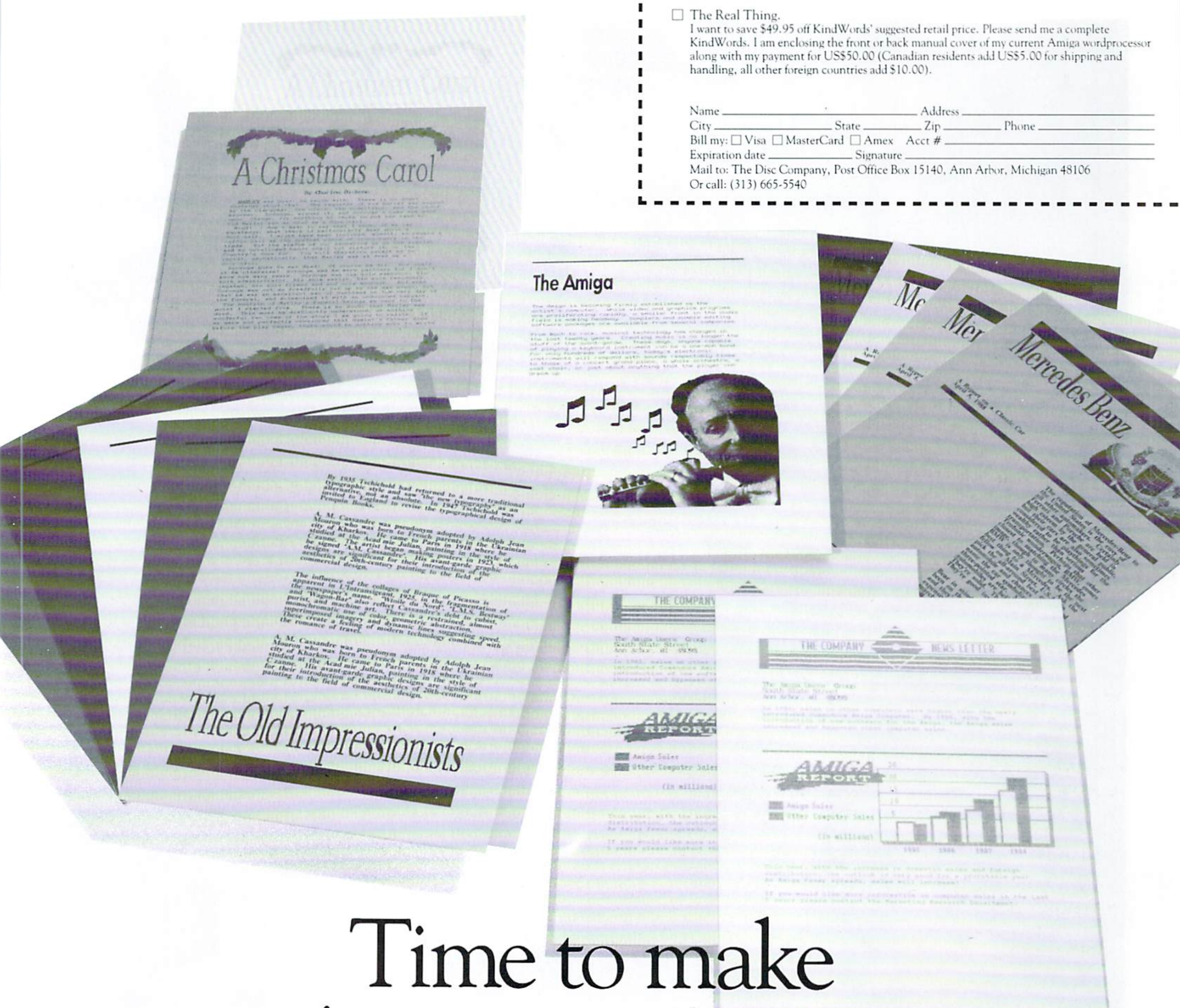
TEXTURE II Magnetic Music / $199 Unlike the initial release, Texture II is Intuition-based with pull-downs and mouse control. Offers MIDI sequencing with all the bells and whistles (16 channels, 24 tracks with full editing, programmable ritard and accelerando, punch in/out, block moves, transpose and sync-to-tape, to name just some). Nonetheless, an anomaly as it requires two MIDI interfaces: Magnetic's MusicSoft ($50) and Roland's MPU-401 "smart" MIDI interface ($275). No internally-generated music, but if you are familiar with Texture on another computer, you will know the Amiga version. SoundQuest editor/librarians recommended (see "MIDI Editors/Librarians" section). ■

Peggy Herrington is a contributing editor to AmigaWorld. *She writes regularly for a number of microcomputer publications and specializes in telecommunications and music. Write to her c/o* AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

☐ Demonstration.
Please send me the KindWords demonstration disk. I am enclosing a $5.00 check (or money order).

☐ The Real Thing.
I want to save $49.95 off KindWords' suggested retail price. Please send me a complete KindWords. I am enclosing the front or back manual cover of my current Amiga wordprocessor along with my payment for US$50.00 (Canadian residents add US$5.00 for shipping and handling, all other foreign countries add $10.00).

Name ______ Address ______
City ______ State ______ Zip ______ Phone ______
Bill my: ☐ Visa ☐ MasterCard ☐ Amex Acct # ______
Expiration date ______ Signature ______
Mail to: The Disc Company, Post Office Box 15140, Ann Arbor, Michigan 48106
Or call: (313) 665-5540



Time to make an important incision.

Take a look at a print out from your current wordprocessor. Then ask yourself, how good do your ideas look on paper?

If they're not as brilliant as the ones you see here, you're ready for KindWords!

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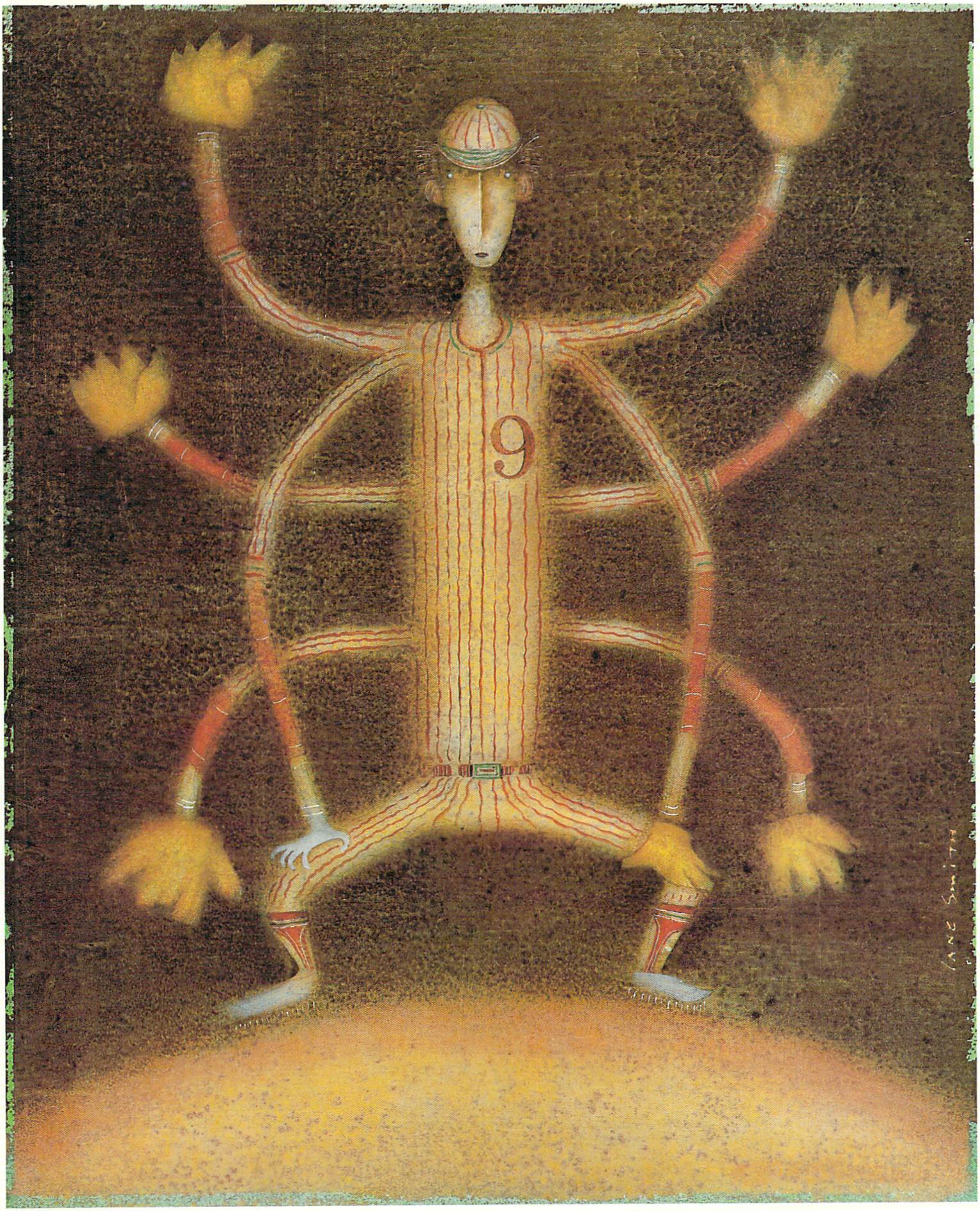
The Disc Company-U.S.A. 3135 S. State Street, Ann Arbor, Michigan 48108 (313) 665-5540
In Europe: Ordex/The Disc Company, 3 Rue Pelouze 75008 Paris, France (33) (14) 522.1515

The printouts above were created using the Hewlett-Packard Laser Jet Plus, Xerox 4020, Apple Image Writer II, Okidata 292. KindWords supports a resolution of 180 DPI on all 24 pin printers and a resolution of 144 DPI on all 9 pin printers.
KindWords is available in French, German, Italian, Spanish, Swedish, Norwegian, Danish & Dutch

Circle 60 on Reader Service card.



ILLUSTRATED BY LANE SMITH

Big League PRO

Precision Software's Superbase Professional has the look of a slugger in the major leagues of data management systems.

If you've been looking for a truly powerful database that has the unique feel and fit of a real Amiga product, you may want to put Precision Software's Superbase Professional in your data management lineup. It provides nearly all the data-handling features found in many big-league, MS-DOS-based systems, without leaving users with the awkward feeling of many programs ported from other systems. Although Superbase Professional also runs on the Atari ST (under the GEM operating system) and on MS-DOS machines that run GEM, the Amiga version definitely has the home-field advantage. It fits beautifully with the standard Amiga user interface.

Based on Precision's Superbase Personal, Superbase Professional enhances the earlier program's capabilities and adds two major new subsystems: A forms editor enables users to produce customized forms (personalized stationery, company logos, and so forth), while DML, an integrated programming language, allows you to develop sophisticated data-handling applications. It also has an External File feature that lets you integrate text files, images, and sounds with your database.

Apart from its slowness when we changed directories or ►

By Mark L. Van Name and Bill Catchings

opened new files, and some caveats about what constitutes a fully relational database, we feel that Superbase Professional is a powerful product at a reasonable price ($349.95).

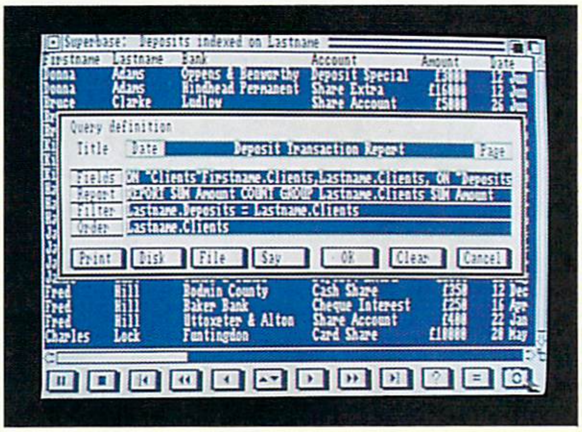
The Fundamentals

You can run Superbase Professional on any Amiga model with 512K and a single disk drive, but it begs for more memory and a second drive. If you have a significant amount of data, you will probably run out of disk space very quickly—Superbase comes on two fairly full program disks and a data disk—so you should consider a hard disk.

Designed to let the novice start work fairly simply, Superbase provides many capabilities that you can learn as you need them. If you are already familiar with database systems, you will be able to get rolling without reading much of the manuals. You can start Superbase from the Workbench or from the CLI. (If you run it from the CLI you first must enter STACK 8000 or set the stack to a larger size.) Superbase initially presents you with a screen composed of a menu bar along the top, a work area, and a "control panel." The menu bar first instructs you to open a file, and, when you do so, displays the file's name and current index. To get started, pick Open File from the Project Menu; Superbase will display the first record of the file.

A Superbase file is a collection of records (blocks of information such as a name, address, and phone number) that have the same set of fields (the individual categories of information in the record) and on which you must define at least one index (a key field to order searches and sorts). Besides the four basic types of fields—text, number, date, and time—you can define text fields that have a fixed number of different values (array text fields). You can specify default display formats, validation controls, and other attributes for each field. You can also name External File fields, which let you integrate text files, images, and sounds with your database.

You can view a file's records in the work area in three ways: Record, Form, or Table View. Regardless of the format, you can work on only one record at a time (the current record). Records can exceed the available on-screen area and require up to 273 columns. The default display is Record View, in which a record's fields appear one to a line, labeled by field name, down the left side of the screen. Table View is basically a columnar listing, while Form View is similar to Record View but has the fields spaced farther apart. Superbase lets you enter and edit data in Record or Form View, but not in Table View. You can make minor changes to the format of the default Table and Form Views.



Superbase's Query window.

Push-Button Control

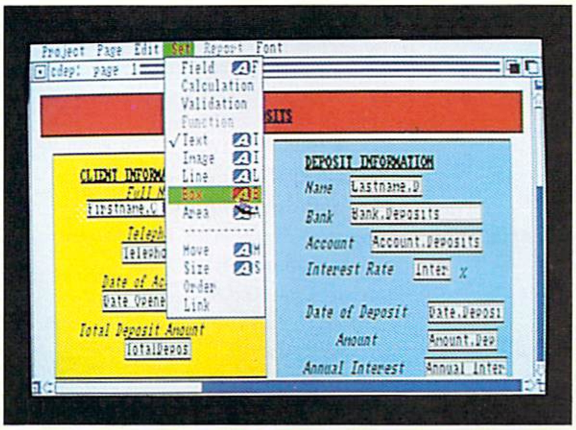
Underneath the main work area is the Control Panel, a strip of a dozen icons designed similar to a tape recorder's buttons. Point and click to activate the buttons. The Previous Record and Next Record buttons move one record at a time, while Fast Forward and Rewind buttons quickly scan the file by filling the work area with records and turning on the Pause button. With Pause you can interrupt, and restart, most actions. To completely halt many operations, including Fast Forward and Rewind, click the Stop button. You can also jump directly to the beginning or end of a file with the First and Last button. If an operation leaves the screen with no record data visible, the Current Record button redisplays the record with which you last worked.

The remaining three buttons let you search for specific records. The Key Lookup button searches based on a record's value for the current index field. You can perform more complicated searches with the Filter button. A Superbase Filter is a query that can range from a single-field equality check to a multifile query with many conditions. You build Filters by pointing and clicking on fields and operators (+, <>, AND, OR, NOT, and LIKE, for text pattern-matching) in a dialog box. If you feel comfortable with Superbase's query language, you can skip the dialog interface and edit the query string directly. The External File button lets you see the contents of any external file named in the current record's External file fields. You examine the file in a separate window.

If the external file is a text file, Superbase brings up its text editor as well. The size of a text file is restricted by the amount of memory on your Amiga, as the editor keeps all of the text in RAM. Although limited, Superbase's editor includes a small set of basic text-handling features. You can use these exter-

nal text files to include large text, or memo, fields in your database.

External files can also contain IFF (Interchange File Format) graphics. When you click the External File button, Superbase displays these images in their intended resolution. You can use the normal window gadgets to arrange the screen so that both the current record and part, or all, of the image appear together.



The Forms Editor.

Finally, external files can contain digitized sounds, either in the IFF sound format or as a data dump from a digitizer. Superbase plays back IFF sounds at the speed stored in the file. If the sound is stored as a digitizer's output, you can control the playback speed by setting an optional parameter on the file name in the external field.

Queries of Relativity

While the external file capabilities let you tie other files to your database, they do not address the problems of maintaining and querying the relationships between different database files. You link two Superbase files in a relational manner, by having matching fields in both. For example, if you had a file of employee information and one that contained data about the employee's dependents, you would link them with an employee number field in both files. The linking field typically would be in a unique index in one file (employee) and in a non-unique index in the other (dependent).

To find the dependents of an employee, you would look them up based on the employee's number. Conversely, to find the employee responsible for a dependent, you use the employee number in the dependent's record to locate the employee. To make Superbase search across two files, put a matching condition (employee_num.EMPLOYEES = employee num.DEPENDENTS) in the search criteria in a filter or query.

Superbase also lets you query on fields in two separate files that it did not know were related, as a relational system should. Such a system should also provide an automatic means for enforcing the integrity of relationships. For example, it should not allow a dependent into the database unless his employee number field contains the number of an existing employee. Superbase provides a way to solve this problem, but it falls a bit short of the current relational ideal because it has no automatic answer to the problem. You use the built-in LOOKUP function, as a part of a field's validation logic, to ensure that the field's value exists in another field in the linked file.

Entry into the Wild Side

To fill the files you are going to search or link, you can enter and edit individual records in either Record or Form View. Superbase goes to a great deal of trouble, opening and closing the file for each record, to be sure that the worst you could suffer from a power failure or other system crash is the loss of the current record. Safety costs, however, because the program accesses the disk frequently. You can live a bit more on the wild side and speed up your data entry with a Batch insert feature that writes to the disk only when you say that you have finished entering records.

Superbase also provides powerful record query, update, and removal facilities. You can build search expressions that retrieve one or more records, and execute those expressions as a query. Queries are basically the same as filters, except that you can save them for later use. You can use these complex search expressions to define groups of records that you want to update. You can also specify a set of updates (salary = salary * 1.05) to apply to the records that match the search criteria. You can even use the search expressions to perform a mass record deletion. Because the potential for destruction is so large, Superbase will ask you to confirm the operation.

To help you share your information, Superbase offers a simple report writer with which you can produce columnar reports that can include both group-level and report-wide totals and counts. You can also export or import data as ASCII (American Standard Code for Information Interchange) text files.

Pro Perks: Forms Editor and DML

Precision's two major new additions to its Superbase system are Professional's Forms Editor and DML programming language. You can design your own forms with Superbase Professional's Forms Editor. Forms can contain from one to three pages, each 66 lines long and up to 80 characters wide. The Forms Editor ►

is "object-oriented." You build a form from page objects, and in turn you build each page by combining six types of objects: areas, boxes, lines, images, text, and fields. Areas are enclosed, on-screen sections that use one background color and pattern. You draw boxes and lines with the mouse. To dress up written correspondence, reports, newsletters, flyers, and so forth, you can incorporate images, such as corporate logos or stationery designs, that are in IFF image files. You type in text and define fields much as you would do with other Superbase tools. Because you can overlap many of these objects, Superbase treats the objects in a hierarchy that reflects the order in which we listed them above. Objects later in the hierarchy will cover up earlier ones. For example, if you shade an area and then type text on it, you will see the text where you typed it. If you then defined a field on top of that text, the field's area would win and you would no longer be able to read the text.

The Forms Editor and the menu-based facilities of Superbase are fine for most needs, but many applications demand the power of a programming language. Superbase Professional meets those demands with DML, the Database Management Language. If you know BASIC, you will find DML very comfortable. It gives you most BASIC statements (from DIM to REM and from FOR/NEXT loops to GOSUB) and a great deal more. There are over 120 DML statements and functions. Most importantly, you can do anything from DML that you can do from any Superbase menu, form, or report. You can define reports, search for and retrieve data, update data, and even change file definitions. You can also do more esoteric things, such as get a screen dump or have the Amiga read (SAY) retrieved data. To make operations easier, you can customize menus and, within limits, new requesters and dialog boxes.

As in BASIC, you can type and immediately execute a DML statement (Command mode), or construct an entire program and then run it (Program mode). To create and edit a program, you use the same text-editing functions as in Superbase's text editor, so you only have to learn the instructions once. You can save DML programs in Superbase's internal format, as ASCII text files, or even in an encrypted form to protect important programs from modification.

PRODUCT INFORMATION

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You can personalize Superbase Professional at all levels. Superbase provides three levels of file passwords, the ability to define up to 21 function keys (shifted and unshifted F1–F10, plus Help), and control over most system options—everything from the number of disk buffers to the default formats for the numbers and dates that you calculate. You can even customize Superbase's startup program with such options as automatically opening and querying several files before the user starts working.

THE BOX SCORE

Despite its many features and professional emphasis, we found Superbase fairly easy to learn and use. If you already have some experience with database systems, you may want to jump directly into the forms, reports, and DML. If you are new to these systems, however, plan to spend a little time experimenting (it includes sample data) and learning the system. The documentation is well-written, well-organized, and clear, and includes many brief but helpful tutorials. The main program disk also includes a large Read_Me file that contains a great deal of useful information. If you need more help, you could have a problem contacting Precision, which is based in England, but Progressive Peripherals & Software, Superbase's U.S. distributor, will answer your questions.

Despite our praise, there are still things that we would like to see improved. For example, a simple, graphical way to establish relationships between files would make life easier and stay in the spirit of the product. Also, while we found Superbase overall to be a fairly snappy system, it was very slow when we changed directories or opened a new file. A hard disk would help to shorten those delays.

Though a little slow on the base paths, Superbase is a power hitter that will get you out of many jams. If you are a database expert, you will like the professional features and the DML. If you are new to database systems, you will be able to get going quickly. Either way, Superbase will be an asset to your data-handling team. Pencil it in your starting lineup. ■

Mark L. Van Name and Bill Catchings are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Rd., Durham, NC 27703.*

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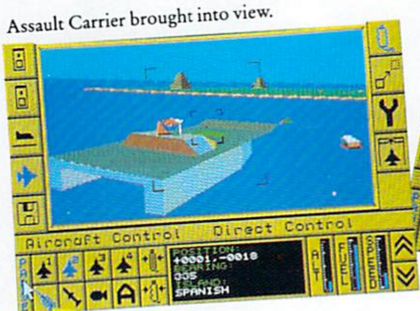
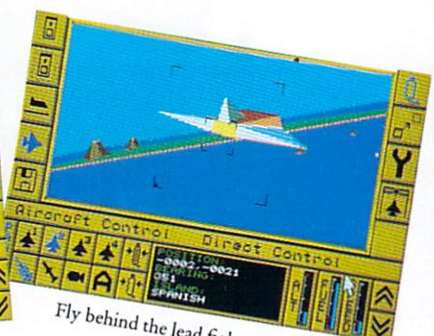
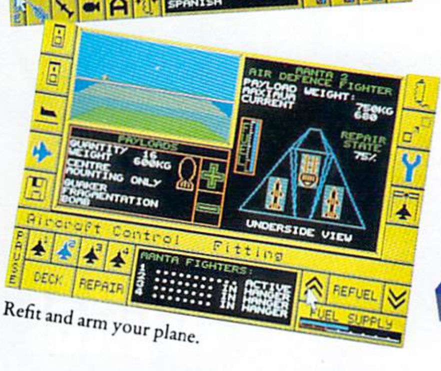




Fly behind the lead fighter of the squadron.



Refit and arm your plane.

Screenshots from Atari ST.

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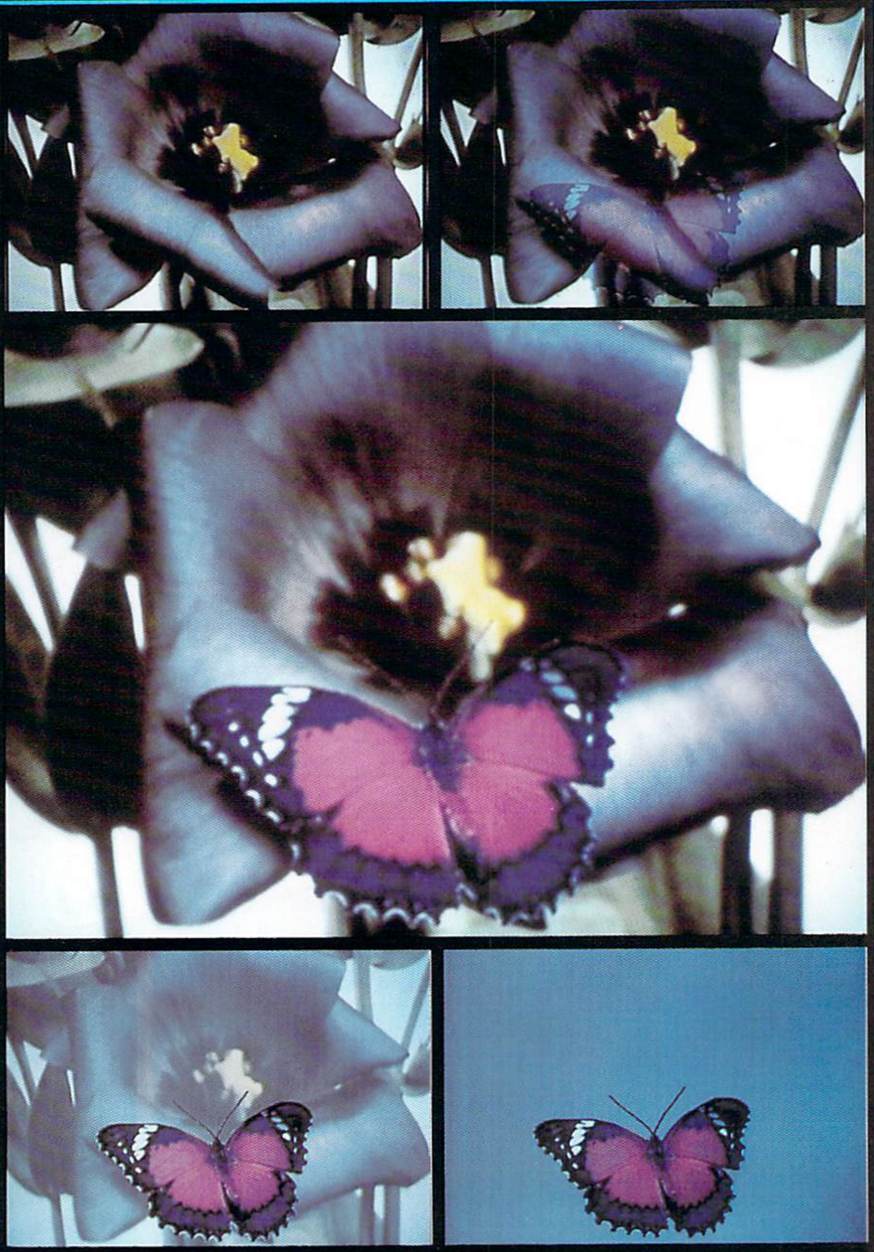

Actual un-retouched photographs of composite video screens.
The flower is live video, the Butterfly is created on the Amiga.
SuperGen is overlaying the Butterfly onto the flower.
The top sequence shows Amiga graphics fading in.
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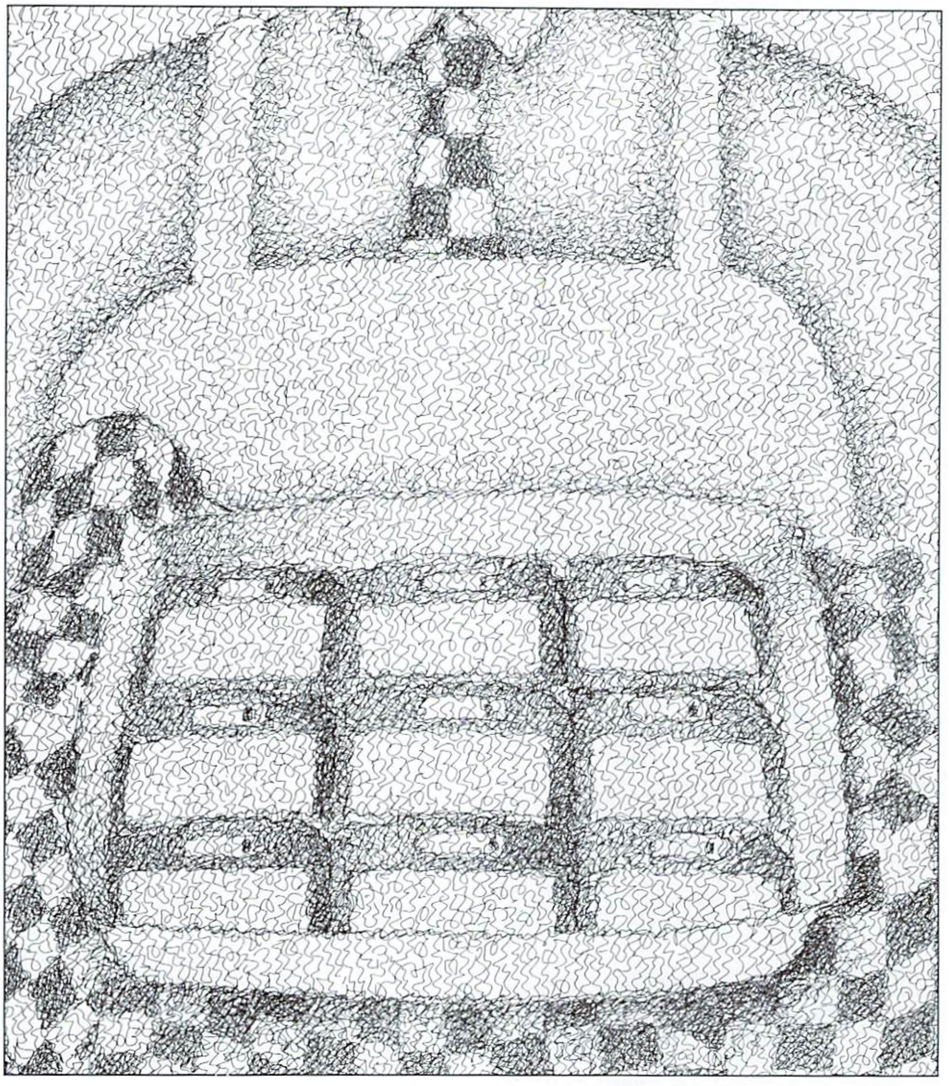
Creating Batch Files

Become a more efficient CLI user by learning how to combine AmigaDOS commands into batch files.

By Bill Catchings and Mark L. Van Name



THE BEST WAY to approach any repetitive task is to look for a way to work smarter, not harder. If you use the CLI regularly, you have probably found yourself endlessly repeating the same lengthy command sequences. You can use the CLI more efficiently by learning how to combine these command sequences into a text file, called a command or batch file. Then you can run them with a single command.

Putting Commands Together

Let's start with a simple example. On a two-drive Amiga, you can check the status of the disks in both drives with the following command sequence:

```
INFO
DIR DF0:
DIR DF1:
```

(We will always put commands in uppercase so that they stand out in text, but remember that AmigaDOS is not case-sensitive.) To create a batch file containing this command sequence, use ED (see the sidebar, EDiting Basics) or any other word processor that can create plain ASCII files.

Once you have these commands in a file, you can run them with the CLI command EXECUTE:

```
EXECUTE command_file
```

AmigaDOS executes these stored command sequences one at a time, just as if you had entered them manually. ►

ILLUSTRATED BY DAVID RIDLEY

You can spruce up these batch files in many different ways. You can create command files that include additional, explanatory text messages by using the ECHO command. We could make the output from our earlier three commands much more useful with a few ECHO statements:

```
ECHO "Here is the basic information
   on both disks."
ECHO " "
INFO
ECHO " "
ECHO "The files on the disk in drive
   DF0: are the following:"
ECHO " "
DIR DF0:
ECHO " "
ECHO "The files on the disk in drive
   DF1: are the following:"
ECHO " "
DIR DF1:
ECHO " "
ECHO "End disk status information."
```

The ECHO statements with a single blank space in quotes produce blank lines. If we entered these commands into a file named disk_info, we could run them as a batch file at any time by typing:

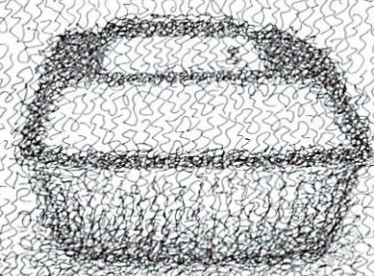
EXECUTE disk_info

AmigaDOS expects to find batch files in the current directory. If it does not find one there, it will search the directory assigned to the logical device S:. (S: is typically the S directory in the root of the Workbench disk.) The S: directory acts as a central storage area for all batch files, much as the C: directory contains the AmigaDOS commands themselves.

Standard Startup

The S: directory initially contains one particularly important batch file: the startup-sequence. Even though your ►

EDiting Basics



IF YOU NEED to write a batch file or perform other simple text-editing chores, you can use the AmigaDOS screen-based text editor, ED. ED provides a limited set of commands that is adequate for many simple editing jobs. You start it by entering the command

ED filename

If filename does not exist, ED creates it.

ED then displays the first screen of text in the file and puts the cursor on the first character. You insert characters simply by typing. You move the cursor to any other location in the text by using the four arrow keys. ED uses an insert-mode style: when you type, any existing text to the right of the cursor will be pushed to the right to accommodate the new text. If a line gets longer than you like, you can break or "split" it into two parts by placing the cursor at the desired split point and pressing Return.

You may also want to combine the text from the next line with the current line. There is no special key that will do this for you. Instead, you must enter the command on a special command line. When you are on this command line, you are in extended mode. You enter extended mode by pressing ESC. The command line prompts you with an asterisk that appears at the bottom of the screen. ED treats any characters that you enter in this line as commands rather than text. You can join the two text lines by typing J on the command line and pressing Return. ED will return you to text-insert mode after it joins the lines. To return to insert mode without entering any commands, simply press Return.

When you are finished, you can either save or discard your work. First enter extended mode. Then type X to save, or Q to discard, and press Return to exit.

ED provides many more commands, but this small group is all that you will need to create and edit most command files. *—BC & MVN*

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Amiga appears to start in the Workbench disk, if you watch it carefully through the boot process, you will see several CLI commands appear on the screen. They appear because the Amiga actually begins in the CLI when it boots. Then, as soon as the CLI is running, AmigaDOS executes the startup-sequence command file. The standard startup-sequence contains the following lines:

```
echo "Workbench disk. Release 1.2
  version 33.47"
echo "  "
echo "Use Preferences tool to set date"
if EXISTS sys:system
  path sys:system add
endif
if EXISTS sys:utilities
  path sys:utilities add
endif
BindDrivers
LoadWb
endcli > nil:
```

The first three lines should now be familiar; they are just providing us with some explanatory messages as the system boots. Next we have two IF statements. (Notice that AmigaDOS will let you indent batch file lines for clarity.) The IF statements are AmigaDOS commands that you use only in batch files. While there are several basic types of IF statements, the two in this file follow the simple format

```
IF condition
  command
ENDIF
```

You can test several different things in the IF condition. (By putting NOT in front of any of these tests, you can also test whether the conditions are false.) One of the most common tests is whether two strings match. Typically you compare a batch file parameter to the null, or empty, string to see whether the user supplied that parameter. This test takes the form

```
IF <parameter> EQ ""
```

Each AmigaDOS program can set a return code that indicates its status when it completes. You can use an IF statement to test that code to determine the program's final status. If that code is 0, all is fine. Higher codes denote more severe situations: a return code between 1 and 9 indicates a warning; between 10 and 19, an error; and 20 or higher is usually a severe failure. A status of 10 or greater normally will terminate the batch file that ran the program. The FAILAT command tells a batch file to terminate if it receives an error code greater than a given return code, but otherwise to plow ahead. For example, if you entered FAILAT 30, you could use an IF statement to test for any error in the traditional AmigaDOS warning, error, and failure classes.

The final type of IF condition is the one used in the two IF statements in this startup-sequence. It tests whether a file exists. The first such IF statement causes AmigaDOS to add the directory sys:system to your search PATH if that directory exists. The second IF statement does the same things for the sys:utilities directory.

The next two lines run two AmigaDOS commands. The first, BindDrivers, tells AmigaDOS to be ready to use any device drivers that it finds in the SYS:EXPANSION directory to manage the hardware associated with those drivers. For example, if you buy a hard disk for your Amiga it might come with a device driver that would be stored in this directory.

The LoadWb command starts the Workbench. After this command has completed, your Amiga has the Workbench ready to go, but you are still running in a CLI window. The endcli command on the final line terminates this CLI process, so that you end up in the only remaining process—the Workbench. The special "> nil:" part of this command causes AmigaDOS to send to the NIL: device any output that it produces as it stops this CLI process. Sending characters to the NIL: device amounts to throwing them away, so we never see any of this output.

Customizing Your Startup-Sequence

You can change your startup-sequence command file in any way you want. You might decide that you want to boot your Amiga in the CLI and not jump into the Workbench. To do that, just remove the last two lines of this file. You could compromise and boot in the Workbench but also keep a small CLI window available. To do this, insert the following command before the LoadWb line:

```
NEWCLI CON:1/20/200/100/
```

This command starts a new CLI process in a window that starts at screen pixel 1►

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Large numbers of MicroBotics StarBoard2 owners have moved over to the A2000. To protect their investment in our technology we've made available a simple, low-cost adaptor card that permits the installation of a "de-cased" StarBoard2 inside the Amiga 2000 (in the first 100-pin slot). When adapted to the 2000, StarBoard2 is still fully functional autoconfiguring memory plus you get access to all the StarBoard2 MultiFunction options– StickyDisk, Math chip, parity or the new SCSI Module. Available now. Suggested list price is only $49.95.

8-UP! FastRAM
Maximum Memory in One Slot!

The FastRAM card that every Amiga owner will eventually come to –why limit yourself to the possibility of only two megabytes per slot when 8-UP! will take you all the way to the top of the autoconfiguration memory space of EIGHT MEGABYTES ! 8-UP! uses an exclusive MicroBotics-designed memory module, PopSimm, that frees the user to install his own, conventional DIP-style DRAM in standard SIMM sockets on 8-UP!. If you use 256k PopSimms you can install two megabytes on 8-UP!; if you install 1 meg PopSimms, you can install eight megabytes on one card! In either case you can install the memory chips yourself for maximum flexibility and mininum cost. 8-UP! will also accept conventional SIMM memory. 8-UP! is a power efficient, zero wait state, autoconfiguring design. 8-UP! will be available 2nd quarter of 88. Suggested list prices start at $199.

For the
Amiga 500...

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As we are all coming to realize, a 1-megabyte Amiga (at least) is a necessity not an option. When you add the inboard 512k memory and clock module to your A500, make it a MicroBotics-brand, plug compatible work-alike. It uses the exact same kind of memory and the exact same clock and battery. And note that just like Commodore and unlike some third-party expansions, we use a long-lived rechargeable Ni-cad battery by Varta– which you'll never have to replace! Set the MicroBotics clock using the same software (on your WorkBench disk) as you use for the Commodore clock. What's the difference? You get to keep $21 compared to the Commodore version. M501 has a suggested list price of only $179.

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StarBoard2/500
Two Megs and a Choice of Modules

The premier memory expansion for the A1000 is now available on the A500. In a sleek, redesigned case with an independent power supply strong enough to power StarBoard2 and another A1000-style StarBoard2, all the power and flexibility of this great expansion device is available to you. Up to 2 megabytes of autoconfiguring, zero-wait state FastRAM, MultiFunction or SCSI module capability for either math chip/StickyDisk functions or fast SCSI harddisk interfacing. StarBoard2/500 also has a unique LED diagnostic/confidence light to indicate the powered up state of your Amiga and your expansion memory. Another A1000 style StarBoard2 can be connected to the expansion bus pass-UP (it exits through the top of the case) for a total of FOUR megabytes of memory and two modules. Suggested list price $339 and up.

For the
Amiga 1000...

StarBoard2
The Expansion Product of Choice

The superb memory expansion for the Amiga 1000, still going strong! Up to 2 megabytes of zero-wait state, autoconfiguring FastRAM in a sleek, all steel Amiga-colored case plus the capability to accept either one of two daughterboard modules: the original MultiFunction Module or the brand new SCSI Module. StarBoard2 is powered by the bus (up to two StarBoard2's can be supported by the A1000) and passes it on. Available now; suggested list price $339 and up.

MultiFunction Module
High Tech at Low Cost

This "daughterboard" installs on any StarBoard2 (all three Amiga models). It features a socket and software to support the Motorola 68881 Math Chip as an I/O device (MicroBotics pioneered this approach on the Amiga –now directly supported in the math libraries in the new AmigaDOS1.3). StickyDisk gives you the most "bullet-proof" rebootable ram disk –its hardware write protection turns the whole device into a solid state, superspeed disk. alternately, parity checking of StarBoard2 memory can be enabled when extra parity RAM is installed. Finally, the MultiFunction Module carries an easy to use battery-backed clock to set your system time on start-up. Available now; suggested list price $90.00.

StarDrive Module
Speedy, Low-cost SCSI Interface

As an alternative to the MultiFunction Module, all models of StarBoard2 can accept this new hard disk interface. StarDrive affords you cost-effective, pseudo-DMA access to Macintosh compatible SCSI drives and other third-party SCSI devices. Fast, easy to install including driver software and disk diagnostics. StarDrive also has a battery backed clock to set your system time on boot-up. Available now. Suggested list price: $129.95

MouseTime
The Port Saving Clock

The easiest-to-use, most cost effective implementation of a battery-backed mouse port clock for the A1000. MouseTime passes the port through for joysticks or other devices. Complete with WorkBench software. Available now. Suggested list of $39.95.

"Amiga" is a registered trademark of Commodore-Amiga. "StarBoard2", StarBoard2/500", "HardFrame/2000", "8-UP!", "PopSimm", "StarDrive", and "MouseTime" are trade names of MicroBotics products.

Circle 103 on Reader Service card.

on pixel row 20, and is 200 pixels wide and 100 pixels high.

Using Parameters

The startup-sequence file is also a great place to move some or all of the CLI commands to the RAM: disk. You also could build a different batch file that moves some or all of the commands to RAM: depending on a parameter you supply. You use a .KEY directive as the first line in a batch file to tell it that you may want to supply one or more parameters. You can refer to each of those parameters in the batch file by the <name> you gave it with the .KEY directive.

If you supply an argument for a parameter when you EXECUTE a batch file, AmigaDOS replaces the parameter's placeholder in the file with the value of that argument. If you do not supply an argument for a parameter, then AmigaDOS replaces the parameter in the batch file with the null string. Consider the following batch file, move_commands:

```
.KEY all
MAKEDIR RAM:C
IF NOT "<all>" EQ " "
  COPY SYS:C RAM:C ALL
ELSE
  COPY C/ASSIGN RAM:C
  COPY C:/CD RAM:C
  COPY C/COPY RAM:C
  COPY C/DIR RAM:C
  COPY C/EXECUTE RAM:C
  COPY C/DELETE RAM:C
  COPY C/LIST RAM:C
  COPY C/MAKEDIR RAM:C
  COPY C/TYPE RAM:C
ENDIF
ASSIGN C: RAM:C
```

You could invoke move_commands in one of three ways:

```
EXECUTE move_commands
EXECUTE move_commands all yes
EXECUTE move_commands yes
```

In the first case, there is no argument to match the <all> parameter. This will cause the NOT "<all>" EQ "" test to be true, because AmigaDOS will replace <all> with the null string and the test will become NOT "" EQ "", which is false. Because we gave this IF statement an ELSE clause, AmigaDOS then will execute the commands in that clause. (Without the quotes around the <all> parameter, we would end up with IF NOT EQ "", which is illegal.)

The second and third cases supply an argument for the <all> parameter. The second does it by keyword (i.e., by naming the parameter and then following it with an argument value). The third line uses a positional match instead of a keyword; <all> is the first parameter, so AmigaDOS assigns it the value of the first argument. Because both of these cases cause <all> to get the non-null value yes, our condition becomes IF NOT "yes" EQ "", which is true.

The final result is that if there is an argument, we copy all of the CLI commands into the RAM: disk, and if there is no argument, we copy only a few of those commands to RAM:. In either case, we then ASSIGN the C: logical device to the directory RAM:C.

You can also use IF to compare an argument to a specific string or to check the existence of a file. For example, you could write a batch file, real, to see whether a file exists:

```
.KEY file/a
IF EXISTS <file>
  ECHO "<file> is in this directory"
ELSE
  ECHO "<file> is not in this directory"
ENDIF
```

If you then run this command file with the line

```
EXECUTE real foo
```

it will tell you whether foo is present in the current directory. The /a parameter on the .KEY directive forces the user to supply this argument to the batch file. If you don't supply one, AmigaDOS will give an error message.

AmigaDOS batch files are powerful CLI tools that let you work more simply and efficiently. You can do much more with batch files than we have discussed here. To explore them further, get out your AmigaDOS User's Manual for reference and experiment with ED and the batch file commands. ■

Bill Catchings and Mark L. Van Name are contributing editors to AmigaWorld. *Write to them at 10024 Sycamore Road, Durham, NC 27703.*

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from p. 24

I am not a programmer, but my data and time are extremely valuable to me. As long as task-handling errors are a fact of life on a multitasking machine, GOMF is not a luxury, it's a necessity. Commodore should be sending these guys a big check for finishing the work they couldn't. GOMF is perhaps the most valuable and consistently useful utility yet introduced for the Amiga.

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The Director

Graphics spoken here.

By Sheldon Leemon

EVER SINCE IT was introduced, people have been writing programs to show off the Amiga's graphics capabilities. We've seen simple display programs, slide-show packages that display multiple images, and animation programs that run series of images in rapid succession. The Director draws upon each of these formats in providing a graphics-oriented programming language that allows you to combine image display, animation, and sound into complex presentations.

Like slide-show programs, The Director uses a text file (a script) to control screen display. But while slide-show scripts support only a handful of simple commands, The Director uses over 90 different ones. Of these, about half relate to graphics display and manipulation. The rest implement features common to most general-purpose programming languages, including BASIC.

The Director allows you to create integer variables, and provides a rich set of arithmetic and logical operators with which to manipulate them. It also enables you to create a single-subscripted array, which may be used for text-string manipulation. There are I/O commands for reading the keyboard and mouse, and commands for reading and writing disk files. To make it easy for programmers to adapt, its scripts use many control structures found in BASIC: loops require the FOR/NEXT and STEP commands; IF, ELSE, and ENDIF are available for conditional execution, and you can call subroutines using GOSUB and RETURN. Although line numbers are not required, you can use them as labels for the GOSUB and GOTO commands. This broad range of commands makes it possible to create interactive programs as well as passive displays; simple games, multiple-choice quizzes, graphics utilities, and mouse-driven displays are all within the program's capabilities.

Other Than Basic

Although The Director models much of its script language after BASIC, the process it uses to develop programs is closer to that of less interactively-compiled languages such as C. To create a Director presentation, you must first write a program source file, or script, using a separate text-editor program. Then, you run The Director from the CLI, specifying the source file to work on. If your script file is called "myscript," for example, at ►

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the CLI prompt you would enter the command Director myscript. The Director reads the script, and executes the commands it finds there, and displays your presentation on the screen as it goes. When it finishes, it creates a compiled version called a .film file, complete with its own icon. The film file may be executed independently, using a player program called the Projector, which you can distribute for non-commercial purposes.

If your script doesn't work right the first time (as is usually the case), you must go through the cycle again, loading your text editor and The Director each time you want to change the script. This process is not nearly as interactive as with BASIC programming, where the text editor and language interpreter remain in memory.

This method is not as helpful in identifying errors, either. The first time I tried to compile a script file, The Director aborted with the message "math stack imbalance." Unlike BASIC, which highlights the portion of the program containing an error, The Director didn't give me a clue as to which line was faulty. Since the manual didn't list that error message, I had to proofread the whole program to find the mistake (I had left out a comma in one of the command parameters).

The Director's manual states that the text-oriented, non-graphic interface for the program was chosen to allow maximum flexibility. It might be more accurate to say that by providing only minimal user interface, The Director saves enough memory to allow a good deal of work to be done on a 512K system. Whatever the reason, the computer novice may find himself wishing that the program did a bit more hand-holding.

A new programming language requires a thorough manual, and The Director provides one. In addition to its reference section, the manual contains a long tutorial loaded with examples of how Director scripts are constructed. The several sample scripts included on the disk are helpful in demonstrating the effects you can achieve.

Abundant Effects

The range of graphics effects available is quite extensive. The program allows you to load multiple IFF picture files of any mode or size (including overscan) into graphics buffers at the same time, and manipulate or display each buffer separately. The program also lets you load and play ANIM animation files. Unlike simple player programs, however, The Director allows you to extract individual frames from the animation file, and manipulate or display them.

Like most slide show programs, The Director includes a number of built-in commands like Fade, Dissolve, and Wipe for creating interesting transitions between screens. The Blit command gives you full control over the blitter chip for very fast manipulations such as cut and paste. This allows you to selectively change small portions of the screen, and create custom transitions like checkerboard wipes. But while most slide-show programs take advantage of the Amiga's ability to change screens by pushing one away with another, smooth screen scrolling is not included in The Director. Although you can simulate this effect using double-buffering and Blit, the results are not as good.

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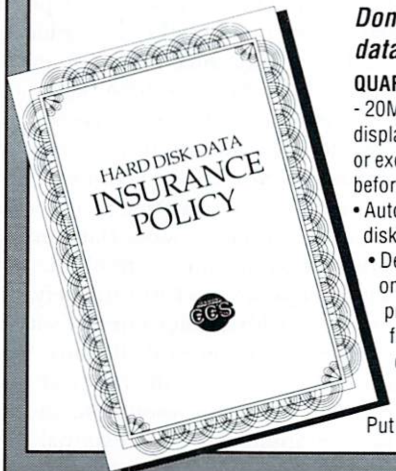

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drawn slides, The Director includes a complete set of graphics primatives, with which you can draw lines, boxes, ellipses and graphics text, as with a paint program. This approach can save a substantial amount of memory compared to loading slides of these pre-drawn shapes. The drawing takes place at ROM-routine speeds—almost instantaneously. The program also contains commands for loading and playing sampled sounds. Although it has no built-in speech or music-player commands, it does include a command called Execute, which lets you run any other program from The Director. Using this command, you can call the SAY program to add synthesized speech or music to your presentation.

The Director is clearly one of the most versatile presentation programs for the Amiga. While the experienced programmer will appreciate its power, the novice may find it somewhat difficult to use. For simple presentations, friendlier programs like TV*SHOW (Brown-Wagh) or VideoTitler (Aegis) will get the job done with less trouble. For intricate custom presentations though, The Director is the way to go.

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By Al Willen

TO TELL YOU the truth, I didn't think the Amiga market needed another database manager. Through extensive testing though, I was delighted to discover that DataRetrieve is unlike its competitors.

Anyone can use DataRetrieve, regardless of experience level. The manual informs completely, yet doesn't insult the seasoned pro. The program boasts file-size capacity of two billion characters, a maximum two billion records of up to 64,000 characters, and equally large numbers on down the line. While I cannot verify these figures, DataRetrieve performed very well within the videotape database I set up. It held 50 records, each containing 150 fields. My 17 title and 17 category fields each consisted of 65 characters.

I marvelled at the ease with which I could set up a new database. To define a field, simply specify a variable name and field type. There are six field types: text, date, time, number, IFF, and choice. Text fields hold data such as names and addresses. The date and time fields accommodate time-related information (DataRetrieve will fill in the current time and date if you choose). You can establish automatic formatting of numeric data in a variety of ways: DataRetrieve supports 34 arithmetic, Boolean, and algebraic operators. (Unfortunately, the numeric fields cannot interact with one another to produce calculations.) The IFF field will accept filenames of low, medium, and high resolution, and interlaced graphic data from external IFF files. Choice fields accommodate answers (such as yes, no, and not applicable) to pre-defined questions. By editing field attributes you can define automatic fields, ►

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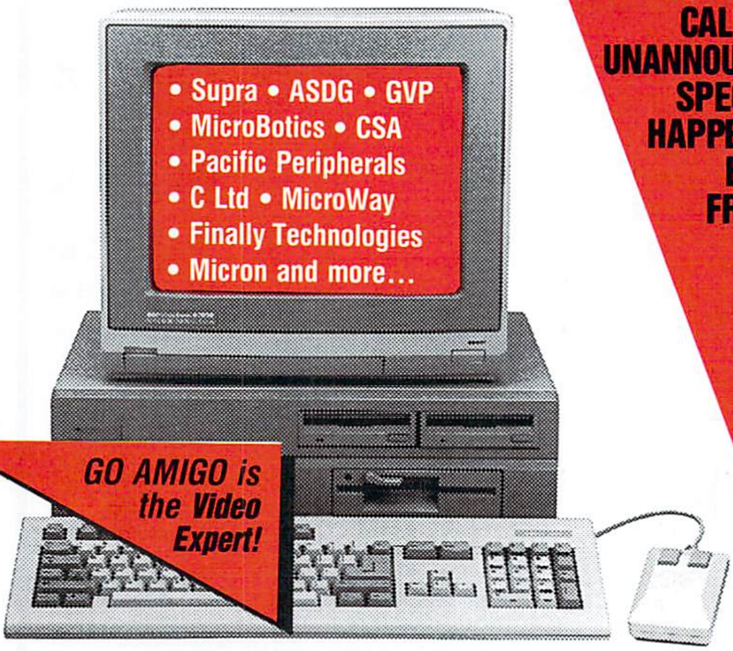

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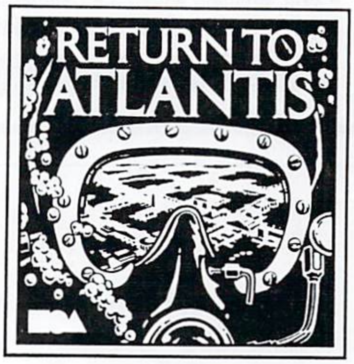

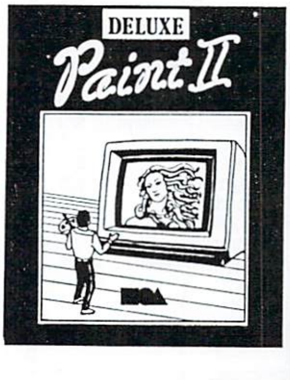

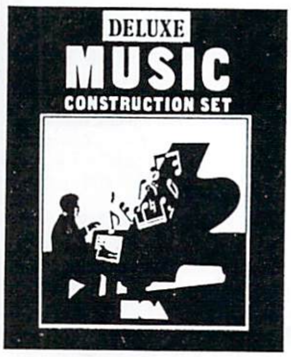

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repeat fields, required fields, and others.

To begin entering data, choose the input mode. A status line runs across the top of the screen, displaying up-to-date information about the active file, including the file name and number of records contained. Below it is a window consisting of icons for editing tools, field names, and corresponding slots for additional data. You can evoke commands through key sequences, pull-down windows, and icons, and you can program up to 20 function keys with key sequences and variable names.

Flexibility Unmasked

DataRetrieve is mask oriented. This means that the data you enter or display passes through a template (mask) that specifies the screen/print position of the various items. Masks let you change the characteristics of a field without actually altering the record itself. They help you change colors, sizes, type sizes, and more; even modify fields that wrap down several lines.

DataRetrieve supplies three masks: a screen mask for data input and output to the screen, a printer mask for formatting multiple-line reports to a printer, and a list mask for formatting output as a list. You can tailor the masks via a multitasking on-screen editor, and even use several masks for one file. By altering the screen mask, you could create a 16-color background over which your data would be displayed on screen. With the printer mask, you could instruct DataRetrieve to print a customer's name and address onto one area of a statement, and inventory, purchase dates, and money owed in separate columns. I created a list mask to print the number of titles on each tape in my video library without the actual title fields.

Be warned that masks on extremely large databases eat up disk space; my video-catalog screen mask took up over 600K—more than the file itself! Creating the mask took 20 minutes of internal processing. Although no "please wait" requester appeared, I could not proceed with my work.

DataRetrieve allows you to output data in report, list, or mailing label formats. For report output, you can opt for headers and footers, page numbering, number of records, dates, and times.

DataRetrieve's main section houses a strip of icons that let you quickly review and change your database. You can keep eight files open at once, and DataRetrieve provides features to manipulate, and copy and paste data within and between databases.

DataRetrieve is disk oriented—it writes and reads from disk in real time instead of from within RAM—so you'd expect it to be slow, right? Wrong. My record of 150 fields input and output faster than with other databases I've tested. (As a bonus, your data is safer because it's saved immediately rather than waiting in RAM for a power failure.) In fact, DataRetrieve is one of the fastest and most flexible products I have used in terms of searching and sorting. DataRetrieve can sort by entry order, indexes, and defined subranges (a group of records that meet any criteria you specify). The default values give good results, but you can easily establish sort direction, multiple level sorts, and sorting priorities.

A Sort of a Search

The buzzword in database structures these days is relational. This means that ►

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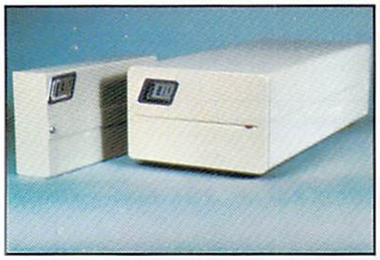

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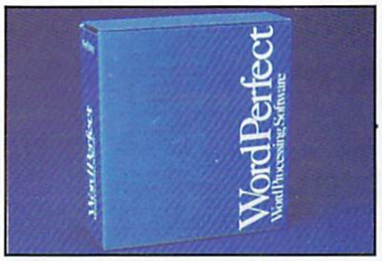

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B906

any common fields can be used to bridge two or more diverse files. In business, relational is wonderful: depleting inventory files can affect stock ordering, sales commissions, and cash intake files automatically. But what average user wants to spend hours designing, testing, and compiling a link between his personal and business address files to create a holiday card list?

Using DataRetrieve's subrange sort criteria, you can start with a generic list and produce business and personal subsets. This option allows you to create spin-off data files that will function on their own.

DataRetrieve allows you to define field indexes (which determine how the data is sorted), and create inverted-triangle search criteria to dramatically shorten search times. DataRetrieve can scan records using any combination of various criteria, including range matching (a very powerful option not usually found in products this inexpensive), and "global search within a record," a particularly outstanding feature.

Searching my video catalog would present problems for many databases. Although each tape has only one catalog number (in the first field), it may contain many movies. I established files to hold each movie's genre: field 6 corresponds to the genre of the first film on each tape; for tapes holding more than one movie, field 12 carries title two's genre, field 18 title three's genre, and so on. With some database packages, I would have to individually establish criteria for fields 6, 12, 18, and so on. With "search within a record" though, I can specify my criteria once.

Extras, Extras

Other features make DataRetrieve hard to beat. DataRetrieve is non-copy protected, you can security lock files with a password, and data will be output to the screen or to a secondary disk file exactly the way it will look on paper. Although I did not try integrating DataRetrieve files into either of Abacus's word processors, the company claims it can be done. The disk contains a number of new printer drivers; I experienced no problems with those I tested. A compact, legible font called "PCfont" is included, too.

DataRetrieve is extremely well designed, and contains features found in products costing much more. Being non-relational is a very small liability, if any, for a home database program. DataRetrieve's hallmark is its ease of use, but don't let that mislead you; it's one of the fastest, most powerful, and most flexible products around.

DataRetrieve
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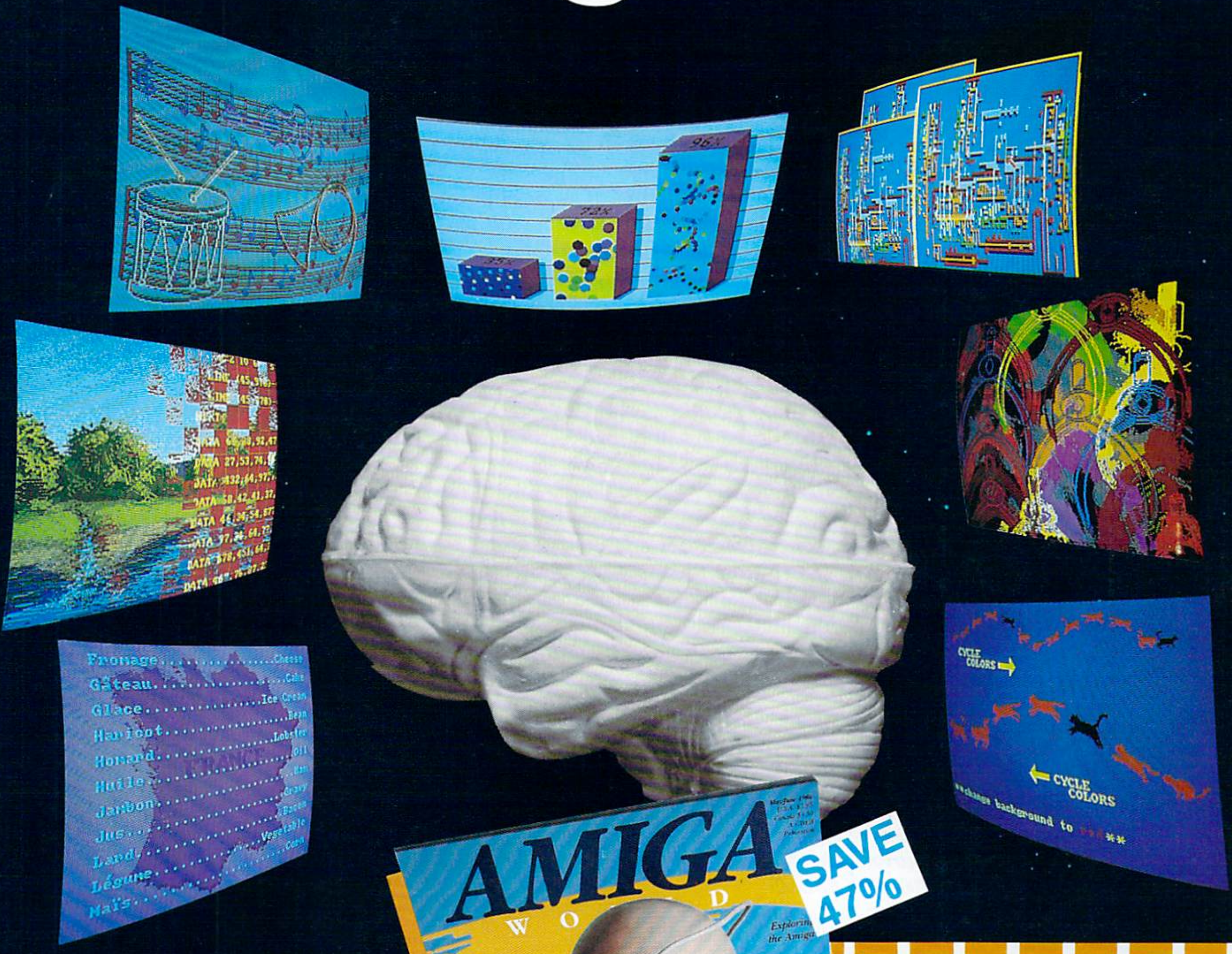
Perfect Vision

Digitize in 20/20.

By Chris Dickman

AMIGA GRAPHICS WIZARDS quickly took to the ability of NewTek's Digi-View digitizer to import images into their systems with a video camera. While Digi- ►

The Machine To Unleash Your Imagination . . .



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 386B2

View became an essential tool for many involved in graphic arts, it had a down side—each image took about ten seconds to digitize. This deep-sixed the impulse to grab most live subject matter, as well as television or videotape input. SunRize Industries has filled this gap with Perfect Vision, which takes just one-sixtieth of a second (one-thirtieth in interlaced mode) to grab an image from any NTSC (National Television Standards Committee) video signal and pop it on the screen. Amiga users now have access to almost limitless imagery.

Perfect Vision consists of both hardware and software. The former occupies a metal case of cigar-box proportions, with two knobs on the front for controlling brightness and contrast. The back holds an RCA phono jack for video input, a nine-pin connector for use with an optional color splitter, and a standard Amiga parallel jack. A garden-variety printer cable connects Perfect Vision to your Amiga. Power is supplied by an external power supply.

You can mount Perfect Vision on a copy stand and use it to digitize still pictures, but this would be a waste of its real-time abilities. It's forte is freezing images in motion, bringing them into an Amiga either directly from a camera or via tape or television. I experimented with a Philips color camcorder, a combination video camera and recorder.

Once you plug everything together and fire up the Perfect Vision software, a title screen appears with a menu bar at the bottom. Clicking on a menu selection either displays a new batch of choices, performs an action, or pops up a requester. The software is modest and won't overwhelm you with complex menus and flocks of ambiguous icons; in fact, the program is completely icon free.

ROLL 'EM

To start digitizing, click on the Cycle selection. A new menu will appear, and Perfect Vision will display your video input on screen in black and white, refreshing every half second in one of two display modes. Slow mode reads data from the digitizer and puts it on the screen from the top down. More satisfying is the default Fade mode, which uses the blitter chip to update the screen not only faster, but more smoothly, between cycles. An interesting option divides the screen into four squares and displays your images in them, refreshing each in sequence. This is a good way to track the movement of your source. Interlace mode is available on one-meg systems, but it's not a pretty sight, producing an effect rather like Max Headroom on acid. Happily, the quality of the images at the regular Workbench resolution is very good, displayed as they are in 16 shades of gray.

So you're busily cycling away, when you see something on the screen worth saving. A click on Record displays another menu and freezes the screen. You can then save the screen to disk or modify it first using any number of the supplied image-processing tools. These can produce interesting but unpredictable effects, especially when combined. Horizontal or vertical edge detection and outlining, edge sharpening, pixel averaging, image slicing (reducing a picture to just black or white), and tinting monochrome images red, green, or blue are all in the Perfect Vision repertoire. If you're like me, however, you will prefer your monochrome images rendered as ►

THE READERS' CHOICE

"HOW COULD HE be so positive/negative about such an awful/outstanding program? I could rate it better than that!" Go ahead, now's your chance to tell us what you think. For the past two years, we editors have applauded our favorite products with the Editors' Choice Awards. This year we leave the voting up to you. On the supplied coupon (or a postcard), rate your hardware and software over a scale of one (the lowest) to 10 for each of the three criteria (A, B and C) listed in the appropriate category. Send your votes to: The Readers' Choice, *AmigaWorld*, 80 Elm St., Peterborough, NH 03458.

In the December issue, we'll present the 1st Annual Reader's Choice Awards with all the pomp and glitter they deserve. However, unlike the Academy Awards who employ the prestigious accounting firm of Price & Waterhouse for their tabulations, *AmigaWorld*'s results are entrusted to the firm of Cutrate & Watergate, infamous for their security leaks. While they can count accurately, they can't keep secrets. In upcoming issues, watch for pre-ceremony peeks inside the envelopes.

CREATIVITY (graphics, video, music, desktop publishing)
A) ease of use
B) flexibility (special equipment needed, integrates with other programs)
C) professional features (Can you use it in your business/studio?)

GAMES
A) playability
B) presentation (graphics, sound)
C) longevity (How long does it hold your interest?)

HARDWARE (memory expansion, hard drives, digitizers, genlocks)
A) ease of installation
B) ease of use
C) technical support

HOME (educational, finance)
A) ease of use
B) documentation (complete reference, examples, tutorials)
C) flexibility (Does it have a variety of uses or will you grow out of it?)

PRODUCTIVITY (spreadsheets, databases, accounting, telecommunications, word processors)
A) ease of use
B) flexibility (import files from other programs, a variety of applications)
C) advanced features (Can you grow into the program?)

PROGRAMMING (languages, utilities)
A) documentation (complete reference, examples, tutorials)
B) flexibility (integrates with other libraries, routines)
C) advanced features (Will it support more complicated applications?)

MISCELLANEOUS (whatever is left)
A) ease of use
B) documentation (complete reference, examples, tutorials)
C) performance (Does it do what was promised?)

PRODUCTS	**RATING** A	B	C

COMMENTS ____________________

PRODUCTS YOU WOULD LIKE TO SEE REVIEWED ____________________

simply and sharply as possible.

Grabbing a single screen is often sufficient, but a welcome extension is the ability to record a continuous sequence. You can either indicate how many screens you want to grab, or use the default, which will grab screens until memory runs out. I found I could usually grab about 13 screens on my one-megabyte A1000. When the recording sequence has finished, you can view screens either by stepping through them or by automatically displaying the sequence, which is much like looking at a series of movie stills. The entire sequence—or individual stills—can then be saved to disk. You might want to call on other software at this point, such as a page-flipping program that will quickly display a sequence of images.

Through Colored Glasses

To create color screens you must bid farewell to the real-time world and return to the DigiView approach of taking multiple exposures through colored filters. Three squares of red, green, and blue plastic are supplied for this exercise; you must hold each in front of the camera lens in turn as you take exposures. Each exposure is held in its own buffer, and you can save the buffers to disk as separate entities or combine them to create a Hold-And-Modify (HAM) or standard 32-color IFF image on screen. A nice touch is a toggle that gives you a few seconds to place a filter in front of the lens before taking the exposure.

SunRize has announced the release of an electronic color splitter to replace those primitive plastic filters. While the module was not released in time for me to test it, it will reportedly bridge Perfect Vision and your source, splitting video signals into red, green, and blue. You can control the module by means of a switch or via the included DB9F connector.

With an image in memory, you can pop up a requester and adjust a handful of attributes like brightness and contrast. For IFF screens, you also have access to a Palette requester for adjusting the red, green, and blue levels as well as the hue, saturation, and intensity of any of the colors. The quality of the color images created is rather dodgy, with pronounced fuzziness and a halo effect where contrasting colors meet. A black-and-white monitor would probably perform better, but Perfect Vision's real-time focusing ability will appeal precisely to color-camera owners.

Perfect Vision opens up new worlds of images for those involved in video and desktop publishing. The ability to save screens in overscan mode is an indication of its suitability for video professionals. The program is logically designed, and hung only after changing a screen many times with a range of image-processing tools. The documentation should be expanded and brought up to professional standards; more technical information would be welcome, given the product's intended market.

If your primary use of the Amiga involves graphics, you could probably make good use of Perfect Vision.

Perfect Vision
SunRize Industries
3801 Old College Rd.
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512K required. ■

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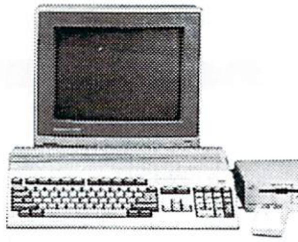

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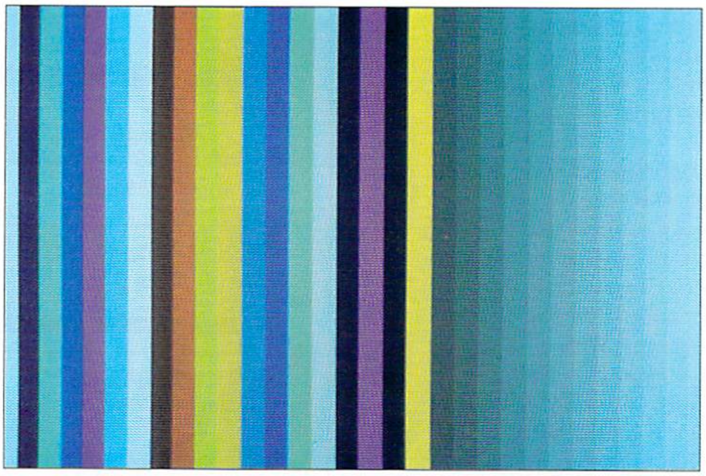
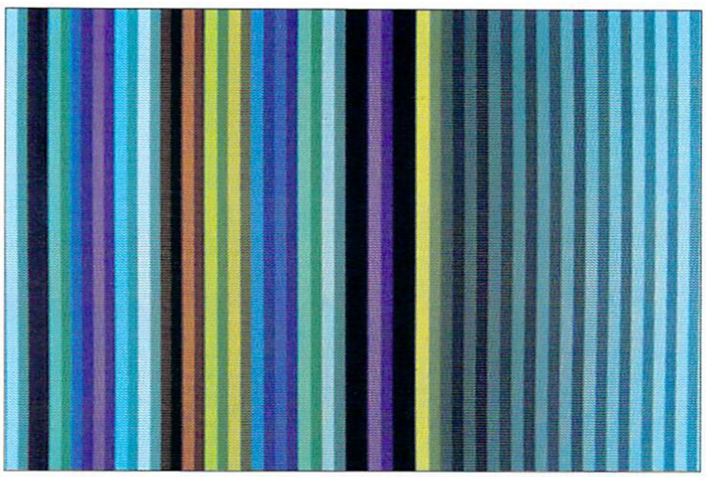
Double For Nothing

C's Extra_Halfbrite mode answers the 64-color programming question.

By Louis R. Wallace



Normal 32-color Amiga display.



64-color display using Extra_Halfbrite mode.

IN A NORMAL Amiga display, the maximum number of individual colors is 32. Offering all 4096 colors, HAM (Hold-and-Modify) mode gives your creativity room to flourish, but puts a cramp in your code. Because each pixel's color is modified by its neighboring pixels, HAM is quite difficult to program without sophisticated color algorithms. Less famous and flashy, but much easier to program in C, Extra Halfbrite allows 64 colors on the screen at once. Each color is completely dot addressable, so they are no more difficult to work with than the usual 32.

A Bit Shifty

Like HAM, Extra_Halfbrite uses the 320-pixel-wide screen, low-resolution graphics. To make the screen capable of displaying 64 colors at once, specify ►

the Extra_Halfbrite mode in your program's NewScreen structure, and use a six-bitplane display. With only 32 color registers to draw on, 64 colors may sound like a farfetched theory. The answer lies in the extra (sixth) bitplane and how it effects the interpretation of the first five.

With five bitplanes, your total palette of colors has values ranging from 0 to 31 (in binary, 00000 to 11111). (For a detailed description of the intricacies of bitplanes, see "How The Amiga Creates A Display," p. 30, in the March/April '86 issue of *AmigaWorld*.) As a general rule, the number of colors equals two raised to the power of the number of bitplanes. The range of color registers runs from 0 to $2^n - 1$. Because there are 32 color registers, the combined binary value of the corresponding pixels in the five bitplanes is an index into the color table. A value of 0 (00000) would be color register 0; 7 (00111) is color register 7, and so on.

Normally, each color register is defined by three values, one each for the red, green, and blue content of the color. On the Amiga, each of these are four-bit numbers, meaning they can range from 0 (0000) to 15 (1111). When you specify Extra_Halfbrite mode, the sixth bitplane alters the value of each of the RGB numbers in the register. With a red value of 14 (1110 in binary), for example, if bit 6 is 0 (unused) the color value is unchanged. If bit 6 of the pixel is 1, the register value is bit-shifted to the right (appending the carry bit, 0, to the front of the number, 01110, and truncating the now extra fifth bit, 0111). The new number, 7 (0111), is half the original value. Its color is half as intense, or darker, than the actual contents of the register would indicate. A similar bit shift occurs for the green and blue values.

One for the Price of Two

Because this is a binary operation, there is no such thing as half a bit. So some different colors will give exactly the same halfbrite color. Suppose your color value is 1111 (15). Shifting a bit to the right yields 0111, or 7, which is the same result given by the value 14.

Programming the extra colors efficiently and effectively requires some preplanning. To use the 32 new colors, specify a register number from 32 to 63. These pseudo-registers are the Halfbrite equivalents of the colors found in registers 0 through 31. Pseudo-color 32 is the Halfbrite version of register 0; 33 is register 1, and so on. If you know you will need a color half the value of another, use SetRGB4 to define the higher intensity (brighter) color in one of the normal registers. Now, using Extra_Halfbrite mode, draw with the pseudo-color when you need it. This way you do not waste any of the normal colors to get the darker shade.

The sample C program (see Listing 1) opens a custom screen using Extra_Halfbrite mode, then ►

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draws a series of 64 vertical bars using the default color palette. The resulting display should have obvious alternating light and dark shades of the standard colors.

Before you plunge into typing the listing, consider that not all Amigas can display Extra_Halfbrite mode. (You can use the listing to test whether or not your machine has this capability.) All A500s and A2000s are capable, as are late model A1000s. According to Commodore, all A1000s made after the first quarter of 1986 have the proper Denise chip (revision 6 or later). Check your chips before you start; if you need the later version you can order one from your local dealer for around $65. If you attempt to run the sample program on an early A1000, it will just display the ordinary 32 colors. At about $1 per color for a new chip, it's worth the investment. ■

Louis R. Wallace is a contributing editor to AmigaWorld *and Technical Manager of* RUN. *Write to him c/o* AmigaWorld, *Editorial Dept., 80 Elm St., Peterborough, NH 03458.*

Listing 1.

```
/*  Generate Extra_Halfbrite Display
    Lou Wallace
    Jan 1988
    Written with Lattice C version 4.0 */
#include "exec/types.h"
#include "intuition/intuition.h"
struct IntuitionBase *IntuitionBase;
struct Screen *Scrn;
struct Window *NoBorder;
struct GfxBase *GfxBase;
struct RastPort *r;
main()
{
  ULONG flags;
  SHORT xx,y,ww,h,d,c0,c1;
  USHORT mode;
  VOID WaitAWhile(),OpenALL();
  int co,x,i;
OpenALL();
/* Open a extra_halfbrite custom screen  */
y=0;
ww=320;
h=200;
d=6;
c0=0x00;
c1=0x01;
mode=EXTRA_HALFBRITE;
Scrn=(struct Screen *)make_screen(
                              y,ww,h,d,c0,c1,mode,NULL);
/* Open a Borderless Window */
xx=0;
y=0;
ww=320;
h=200;
flags=ACTIVATE|SMART_REFRESH|BORDERLESS;
NoBorder=(struct Window *)make_window(
                         xx,y,ww,h,NULL,flags,Scrn);
r=NoBorder->RPort;
/* Draw in 64 colors using default screen colors */
co=0;
for(x=0;x<320;x=x+10)  {
     for(i=0;i<5;i=i+1)  {
```

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Compiled by Barbara Gefvert

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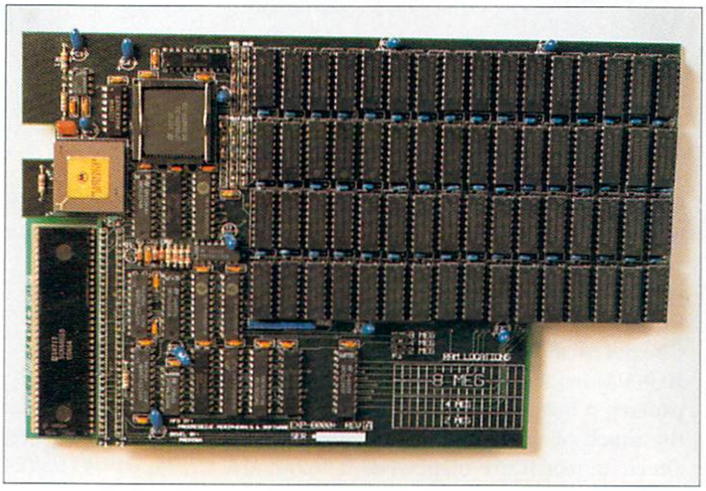
The RAM and controllers auto-configure on both units, and the 16-bit wide DMA data transfer to onboard 4K disk buffers provides for performance unhampered by other DMA activity. You'll find both units in the Great Valley Products ring at PO Box 391, Malvern, PA 19355, 800/426-8957.

AGGRANDIZE!

TAKE ADVANTAGE OF memory-intensive programs and multitasking abilities with two boards from Progressive Peripherals. **EXP-8000 +** turns your A500 into a veritable elephant—in terms of memory—adding up to eight megabytes of RAM. The 68010 processor and 68881 math coprocessor are optional. The totally-transparent **EXP-1000** adds one megabyte of memory to your A500. Both units auto configure, fit inside your computer, and are compatible with Progressive Peripherals' EXP-512 expansion board. Contact Progressive Peripherals and Software, 464 Kalamath Street, Denver, CO 80204, 303/825-4144.



EXP-8000 + gives you and your 500 room to grow.

WRITELY SO

THE ALL-NEW **ProWrite 2.0** promises speedy printing (up to 10 times faster), and features true letter-quality hi-res printing, sideways printing, support for wide-carriage printers, a 95,000-word spelling checker, print (mail) merge, HAM support and picture re-sizing ability, paragraph sorting and new formatting options, and definable defaults. ProWrite 2.0 is $124.95; if you bought the original version earlier than 1988, the update will be $20, and after-January purchasers can upgrade for just $10. Get the write stuff from New Horizons Software, PO Box 43167, Austin, TX 78745, 512/328-6650.

"SOURCERER'S" APPRENTICE

DO YOU DESIGN, code, integrate, and manage large amounts of software? Maybe you'd like to automate the development of source code; maybe you'd like the **Source Builder**. The tool's automation process is based on object-oriented programming techniques. It supports source-code generation in two ways: advanced macro processing (including a full interpretive language to allow looping, branching, algorithmic processing, and more) and logical object processing (based on specifying explicit differences in the base version with commands that manipulate objects in the reusable module library). The Source Builder manipulates ASCII files, so you can write code in a number of languages. Get help for $149.95 from Software Integration Solutions, 16496 Bernardo Center Drive, Suite 205, San Diego, CA 92128-2442, 619/451-3094.

LET US DEBUG

WORKING WITH THE Lattice C compiler versions 4.0 and earlier, **LDebug** allows you to execute or trace through programs by individual C source lines or MC68000 instructions. You can set or clear 32 breakpoints in multiple source modules simply by clicking on a line of code, and specify repeat counts. Double clicking induces a display of the disassembled MC68000 instructions that the compiler produced for the line. $39.95. Contact LogiComp Software, 4010 Woods Blvd., Lincoln, NE 68502, 402/423-6768. ►

ANIMATION:NEW

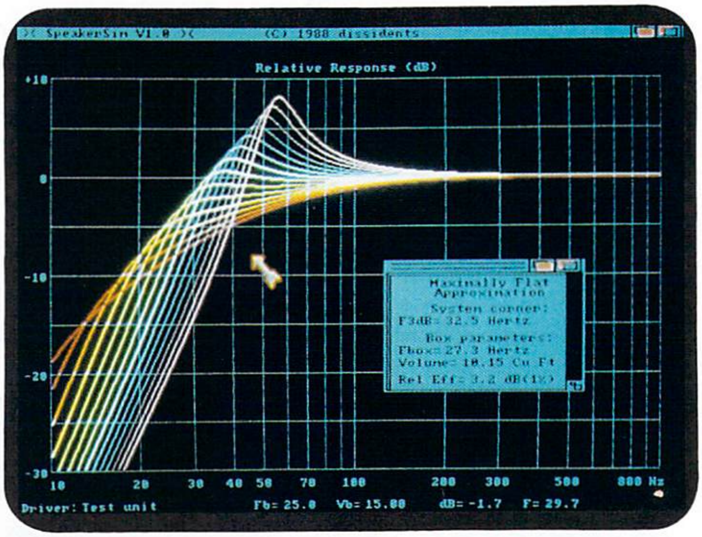
HASH ENTERPRISES ENTERS the spotlight with releases for the animation enthusiast. **Animation:Stand**, a computerized animation camera stand, generates overscanned, 4096-color, real-time files from input of any resolution. An "interpolation" technique maintains the integrity of detail for zooms. **Animation:Effects** performs flips, wipes, title scrolls, and fades; you can use any IFF picture over a genlocked background to produce lo-res, HAM, hi-res or 16-color real-time animations. Both programs are $49.95, and creations from either can be saved as vignettes, for use with other Hash programs.

The **Animation:Multiplane** digital compositor enables you to combine elements from different screens. You can also use it to introduce dissolves, transparency, brightness and contrast variation, pixelation, and other effects into your animations. Animation:Multiplane is $89.95, supports all resolutions, and is compatible with Hash and other animation software.

Two new **3-D animated characters** disks, Knights and Dinosaurs, provide characters and actions for you to integrate into your creations. Each is $24.95.The grandaddy of the series is now available as **Animation:Apprentice 3.0**, and includes new interfaces, a revamped manual, and an instructional videotape. 3.0 is $299.95; owners of previous versions can get the whole package for $29.95, or just the manual and disk for $20. Send your questions, frame by frame, to 2800 E. Evergreen, Vancouver, WA 98661, 206/693-7443.

SPEAKER UP

LISTEN HERE, AUDIO professionals! **SpeakerSim** is a CAD package that will assist you in designing loudspeaker systems by analyzing speakers and enclosures as per the Thiele-Small vented model. The $12 you spend on a demo will be credited toward your program purchase, and you can get $10 off the retail price of $112 until June 30 (add $3 for shipping). Harken unto dissidents, 730 Dawes Ave., Utica, NY 13502, 315/797-0343 for all the specifics.



SpeakerSim's analysis displays in graph form.

THE FLEET FOLLOWS YOU

LOAD **FLEET CHECK** before loading your word processor, and it will check your spelling as you type. If you enter a word not recognized by Fleet Check's 90,000-word (plus 10,000-word customizable) dictionary, a beep will sound. At the touch of one key, up to 10 alternate words are displayed; click on your choice, and Fleet Check replaces the mistake instantly. The thesaurus, containing nearly 10,000 synonyms and antonyms, also features automatic replacement. Upgrade your dog-eared Webster's and Roget's for $39.95. Contact Professional Software Inc., 51 Fremont Street, Needham, MA 02194, 617/444-5224, 800/343/4074.

A LA DEUTSCH, A LA FRANCAISE

OXXI'S SPREADSHEET programs **MaxiPlan 500** and **MaxiPlan Plus** now speak French and German! The new native-language versions include translated manuals and screen text, print and screen output of international characters via the Set Map command, and PAL display support. Oxxi's German representatives are Heinrichson, Schneider & Young at Herderstr. 94, 5000 Koln 1, West Germany, 0221/43-16-87. For the French versions contact Vaugeois Electronique of Tours, 35. rue Giraudeau, 37000 Tours, France, 33-47-37-53-61.

MUSICALLY MINDED

AN OBJECT-ORIENTED set of extensions to the Forth language, **Hierarchical Music Specification Language** (HMSL) is a programming language that allows for advanced experimentation in music composition, perception, cognition, performance, and electronic music. HMSL is user-customizable; full source code is provided. The three main modules (the graphic editor, the real-time stimulus response environment, and the complex hierarchical scheduler) interact and can effect one another. HMSL provides many predefined classes of musical objects, or morphs, which you can arrange in a complex hierarchy and perform via a Polymorphous Executive. A sophisticated set of tools is included, too, for controlling MIDI devices and other hardware. All this and more is yours for $150 from Frog Peak Music, PO Box 9911, Oakland, CA 94613, 415/485-6867.

Need a MIDI-compatible editor for your Roland D-50 Linear Synthesizer? The **D-50 Parameter Editor** is right up your alley. Get it, for $89.95, from Go Software, RR #1, Box 442, Spicer Rd., Thompson, CT 06277, 203/923-2348.

NEWPAINT

HOT OFF THE easel is **DigiPaint II**, including 3-D image mapping, new brush effects, full overscan, enhanced hold-and-modify, screen sizes up to 1024 × 1024, power fonts, colorizing and other painting modes, multiple swap screens, and automatic anti-aliasing to name but a few. The complete package is $79.95; registered DigiPaint owners can upgrade at a discount. Draw up your questions for NewTek, 115 W. Crane St., Topeka, KS 66603, 913/354-1146.

Expert Instruction

WHEN STANDARD TYPING instruction makes you yawn, **Mavis Beacon Teaches Typing** keeps you alert with features such as an arcade "Road Racer" game to help develop speed. Using artificial intelligence, the world-famous instructor tailors lessons to your needs, and explains mistakes in conversational sentences, not bleeps. "Guide Hands" demonstrate perfect technique, and help windows are available every step of the way. Job seekers will appreciate the resume guide and actual tests used by employment agencies. Type up your order and send it, with $44.95, to Electronic Arts, 1820 Gateway Drive, San Mateo, CA 94404, 415/571-7171.

Driving Hard

A TWO-PIECE interface that accepts an XT-style controller card, **The Wedge** will bridge your Amiga 500 or 1000 to IBM hard drives. The Wedge comes in packages for 10MB and up, complete with software and on-line support from the Mind Link BBS, for $159. Drive, call, or write to RSI, 9651 Alexandra Road, Richmond, BC, Canada V6X 1C6, 604/270-0064.

On Solid Ground

TIRED OF BALANCING your monitor on the back of your A500? Phoenix Electronics rescues you from the balancing blues with it's **MS-500**. The steel shelf-like unit fits into a groove on your CPU, forming a solid platform with room underneath for power cords. Take a stand (for $29.95) at Phoenix Electronics, PO Box 156, Clay Center, KS 67432, 913/632-2159.

A Programmer's Pal

THE COMPILER COMPANION, with features such as Extract (which gleans file names from a directory) and Build (which assembles a command file from the extracted list), offers 10 utilities for programmers. An assemblage of previously-released utilities, The Companion executes faster, requires less memory, and, at $99, is more economically priced. The program aims to provide a complete programming environment, regardless of the language used; only one option is language-specific. Contact Lattice Inc., 2500 South Highland Ave., Lombard, IL 60148, 312/916-1600.

Quicker Flipper

DID YOU FLIP over Pageflipper? Now you can integrate graphics tools by running any image-generating program as a subtask of **Pageflipper Plus F/X**. Combine this with incremental compilation technology (in addition to other compilation and compression options), and you get flexibility and speed for developing, testing, and fine-tuning animations. Pageflipper Plus F/X includes all standard screen transitions. The script editor is interactive and context sensitive to allow easy experimentation. You can chain compiled animations across several disks, and make animations call one another. The price is $159; registered Pageflipper owners can upgrade for $50. Get further details from Mindware International, 110 Dunlop W. Box 22158, Barrie, Ont., Canada L4M 5R3, 705/737-5998.

I'm Your Handy Disk

IF YOUR DAMAGED or deleted files should need recovering, then **Disk Mechanic** is for you. This handyman can increase access speed and make archive copies of hard disk or floppy files, too. Also included are CLI utilities and a full-featured sector editor. The Disk Mechanic's wages are $89.95; contact Lake Forest Logic, at 28101 Ballard Road, Unit E, Lake Forest, IL 60045, 312/816-6666.

Don't Look Back

THE FIRST OF a three-volume set of disk-drive utilities, **Ultra DOS Utilities, Module I** is a multitasking hard-drive backup. It will auto-configure to multi-hard-drive systems, and support up to eight and a half megabytes of memory. Module I employs a double-buffered copy routine for speed, and backs up files through point-and-click selection, by creation date, and by wild-card search patterns. Module I's list price is $59.95; get further details on it and the other volumes from Free Spirit Software, 905 W. Hilgrove, Suite 6, LaGrange, IL 60525, 312/352-7323.

C Me

LEARNING ADVANCED C programming isn't impossible. **A Programmer's Introduction to C, Part 2**, guides you along with a two-hour video and 120-page manual. Get parts one and two from Berkeley Decision/Systems, 803 Pine St., Santa Cruz, CA 95062, 408/458-9708.

A Question Of Image

WHAT COSTS $139.95 and promises to turn you printer into a high-resolution image scanner? **IMG Scan II**—and, while it's fully color assignable, the program offers 256 gray levels. Imagine . . . it's from Seymor-Radix, PO Box 166055, Irving, TX 75016.

Cockpit Control

FLY YOUR CHOICE of two fighter planes—the F-18 Hornet and the F-16 Falcon—over San Francisco Bay with **Interceptor**, the flight simulator that lets you select from six combat missions. The jets' windows take up most of the screen. Take off from an aircraft carrier and buzz the Transamerica Pyramid or fly under the Golden Gate and Bay bridges. Digitized jet weapon sounds are another feature, and cockpit controls display weapons status, radar, throttle speed, compass, and altitude gauges. Become a winged warrior for $49.95. Buzz Electronic Arts, 1820 Gateway Dr., San Mateo, CA 94404, 415/571-7171.

Print Away

LIGHTNING PUBLISHING offers five new preferences printer drivers: the Quadram QuadJet and the NEC CP6 (each $30), and the HP PaintJet, the NEC CP7, and NLQ 324C ($50 each). Direct your queries to 1821 N. Ohio St., Arlington, VA 22205, 703/534-8030.

Calling All Sysops

INTERESTED IN A newsletter and nationwide BBS directory? Send your inquiries to National Bulletin Board Newsletter, PO Box 1831, Boerne, TX 78006, 512/537-4663. ■

HELP KEY

Better than a Band-Aid, Lou fixes all of your problems . . . and one of his own.

By Louis R. Wallace

Compatibility for Life

Q: *For all of you who sent in questions about compatibility problems with older Electronic Arts games and your Amiga 500 or 2000, EA finally has a solution for you.*

A: Because they require the 1.1 operating system or cannot handle over 512K of RAM, some early Electronic Arts games will not run properly on the A500 and A2000. Electronic Arts now will let you trade in your older disks for 1.2 versions that will also work with expanded memory.

EA has also instituted an exchange program called Software For Life. If you upgrade to the Amiga from an eight-bit computer, such as the C64 or Apple II, you can update your existing EA software from eight-bit to 16/32-bit versions. Return your current programs, and buy the Amiga edition for half price. For more information, contact Electronic Arts at 415/571-7171.

April Blunders Bring June Corrections

If you took my advice to the "Baffled Booter" in the April '88 Help Key (p. 85), you are probably still baffled. To automatically load the correct printer driver when you boot your A2000, you should copy the system-configuration file found in the DEVS: directory on your hard drive, instead of copying Preferences from the hard drive to the boot disk. Type: COPY DH0:DEVS/SYSTEM-CONFIGURATION to DF0:DEVS to correctly update the Preferences you have selected. They will be used the next time you boot.

Lost in Scroll

Q: *I am writing a game in Amiga Basic and I want to be able to scroll a section of the screen to show the player's location. The problem is when the area of the screen is scrolled, I lose the scrolled portion and I can't get it back. I am using a window type of 16 (which means the window should be redrawn), but it still doesn't work. I thought of using GET and PUT, but that would be quite complex and memory intensive. Why is SCROLL destroying my display?*

T. Gray
El Toro, CA

A: In Amiga Basic, SCROLL does not really scroll an area, it moves it, making it more of a screen copy command than a scroll. (The Amiga's better scrolling abilities are not readily available from Amiga Basic.) Because it is actually copying one part of the screen to another, it does so destructively, replacing an area without saving what was there. The window type of 16 is only useful for restoring your display when it was covered with another window.

Using GET and PUT is your best bet, but they are quite memory intensive. Before scrolling in a given direction, determine the areas that will be destroyed, and store them with GET. When you want to restore the screen, use PUT to return the array containing the area to its proper place. The following program uses GET, PUT, and SCROLL to move a rectangle without destroying what is underneath.

```
ON BREAK GOSUB getout
BREAK ON
' add memory for array
CLEAR,50000&
' for a rectangle of 100 pixels in x
' and 50 pixels in y
x1=200:x2=399:y1=0:y2=1
sizex = 6+((y2-y1+1)*2*INT((x2-x1+16)/16)*2)
DIM x%(sizex,200)
' make a background to scroll over
word$="abcdefghijklmnopqrstuvwxyz0123456789AB"
word$=word$+word$
FOR i=1 TO 22
   PRINT word$
NEXT
sx=200:sy=0:ex=400:ey=sy
'save screen as 1 pixel horz rectangles
FOR i=0 TO 190
   GET (sx,sy+i)-(ex,sy+i),x%(0,i)
NEXT
LINE (200,51)-(399,98),3,b
PAINT (300,75),2,3
pointer=99
sx=200:sy=50:ex=399:ey=sy+49
dx=0:dy=-1
' do the scroll
MainMoveUp:
dy=-1:pointer=ey
MoveUp:
SCROLL (sx,sy)-(ex,ey),dx,dy
PUT (200,pointer),x%(0,pointer)
pointer=pointer-1:sy=sy-1:ey=ey-1
IF sy=10 THEN GOTO MainMoveDown
GOTO MoveUp:
MainMoveDown:
dy=1:pointer=sy
MoveDown:
SCROLL (sx,sy)-(ex,ey),dx,dy
PUT (200,pointer),x%(0,pointer)
pointer=pointer+1:sy=sy+1:ey=ey+1
IF sy=130 THEN GOTO MainMoveUp
GOTO MoveDown:
getout:
' restore memory to 25k
CLEAR,25000
END ■
```

Here At Last!

AMIGA WORLD
PUBLIC DOMAIN
LIBRARY

AMIGAWORLD, IN CONJUNCTION with four leading Public Domain software houses, now brings you the largest selection of Public Domain programs ever assembled in one place.

Chiron Conceptions, DevWare, Software Excitement, and Comp-U-Save each specialize in a different area of Amiga Public Domain.

DevWare

Disks for the developer and advanced user. CLI-based and filled with usefull utilities, demos, subroutines, and programs, almost all with source code.

Software Excitement

Disks for the Workbench user. Many of the best PD programs for everything from business to games.

Chiron Conceptions

Category disks for special-interest users. Music, graphics, C, Amiga Basic, and more.

Each disk is filled with programs, fully tested, fully de-bugged, documented, and organized in a way that makes them more valuable than other Public Domain disks. A great value at only $7.00 per disk (plus $1.00 postage and handling for each disk).

You could search the BBSs and user group libraries yourself, gathering many of these programs one or two at a time, but these three companies have already done that for you!

But just in case you ARE looking for disks from an existing library, there is also:

Comp-U-Save

Complete libraries of Amicus, Amuse, B.C.S., Fred Fish, I.C.P.U.G., L.I.C.A., M.A.R.C.A, N.C.A.U.G., and New Age. Each disk is only $5.00 (plus $1.00 postage and handling for each disk).

If you want the complete catalog listings from all four companies—describing each disk in greater detail (listings for nearly 700 PD disks!)—plus order blanks, specials, and information about contributing to AWPDL, send $2.00 for the AWPDL catalog pack (see order form below).

Here are just a few of the disks available from Software Excitement, DevWare, and Chiron Conceptions:

From Software Excitement.

(Workbench oriented)

SE #37 - Business. Address book, amortization prog., talking mail manager, label printer, more.

SE #42 - Tele-Comm. StarTerm 3.01, area code finder, cost timer, BBS.txt (list of over 100 Amiga boards), more.

SE #115 - PD Word Processor. With spell checker and dictionary, VDraw (shareware paint), VT-100 term emulator, appointment calendar.

SE #116 - Business II. VC-Spreadsheet, HP-10c calc, diversions, more.

SE #117 - Business III. DataBase, RSLClock (utility), AmigaSpell, new fonts.

SE #118 - Games. Missile Command, 3-D Triclops, Cosmo-asteroids clone, BreakOut, Yatzee, Hack, more.

SE #121 - Backgammon. By David Addison.

SE #122 - Solitaire. Two versions by David Addison.

SE #123 - Cribbage. One or two players.

SE #124 - Milestone. PD Miles Bournes by David Addison.

SE #125 - Othello. 3-D version.

SE #128 - Space Games. Cosmoroids (like asteroids) and Gravity Wars plus more.

SE #131 - Pac clone. Better than original.

From DevWare

(These disks focus on the developer and power user. Most contain source code. All programs must be run from CLI, and Workbench is not included.)

DW #1 - 3-D graphics demo, prog for browsing directories, DiskSalv (utility for salvaging corrupted disks), Emacs3.6 (MicroEmacs text editor).

DW #10 - Memory test prog., how to build a dual floppy, 2 input event handler demo progs., Lattice3.10 bug fixes, sound editor, PipeDevice, random number generator in C, Unix uuencode and uudecode utilities, more.

DW #14 - CLE (CLI replacement), EGad gadget editor, FindWindow example, MacView (read and convert MacPaint pics to IFF), warmboot-stable RAM disk driver, Vidtex, more.

DW #15 - Amiga version of Unix's Yacc, how to build a battery-driven clock for Amiga, program for handling patches of MIDI instruments, VT100v2.6 (includes Xmodem and Kermit).

DW #17 - DBWRender. Very sophisticated package for rendering ray-traced images. C source included.

DW #21 - Arc023, CD command replacement, utility to change some printer driver parameters, simple CLI database, text editor, kickbench generator, NewZap3 binary file editor, PDMake, Modula 2 programming examples, more.

DW #23 - Blitter experimenter prog., telecomm prog., CLI alternative w/editing and history, DirUtil prog., HP-10c, Make utility, Modula 2 printer dump example, TDI Modula 2 error display utility, ROM Kernel Manual errata, TDI Modula 2 version 3.00a bug fixes, Amiga Exec system lists exploration prog., more.

DW #24 - Hard disk backup prog., Manx C version 3.40A bug fixes, 40 printer drivers, Unix-like command interpreter w/history and aliases, curve-fitting spline prog, 2 trackballs for Amiga (MacTball and Atari 2600), video pattern generator, more.

DW #26 - convert batch files from "execute XXX" to "XXX", Bezier curve prog., beta spline curve prog., assem. language include (.i) file compressor, ConMan0.98 console device alternative, disk format exploration utility, MCad1.2.5 (shareware), printer-driver generator (shareware), more.

DW #28 - 3-D terrain generator in C, Rob Peck's audio device subroutines, IFF graphics to PostScript laser printer prog., extra-half-bright tester, icon collection, info command alternative, memory clear C example, Modula 2 draw prog. example, 2 AmigaDOS utilities in Modula 2, Modula 2 Intuition menus example, more.

From Chiron Conceptions

CC #202 - Amiga Basic Programs II. Sixty Amiga Basic programs in 12 categories, including games, business, graphics, subroutines, .BMAP routines, utilities, and more.

CC #302 - Utilities II. A collection of utilities, compiled and ready to run, including DiskSalvage, FileZap, Fixobj, IconExec, ARC, CompressZ, XLISP, Screendump, and more.

CC #303 - Utilities III. Includes MVP-FORTH, 12 new character set fonts, DirCopy, ShowHAM, ZapIcon (converts DPaint brush to icon), more.

CC #304 - Graphics Utilities. Including MacView (w/18 MacPaint paintings), 3 screen-dump programs, HAM to HAM IFF converter, FONTED (design your own character sets), more.

CC #305 - Utilities IV. Over 30 utilities, including Browse, DiskCat, DiskMap, HAM-Print, KwikCopy, LibDir, AltIcon, Klock, MemView, PopCLI, SpriteMaker, Tree, more.

CC #308 - Utilities V. More utilities, including ChangeKickStart, Dlabel, MenuCat, PrtDrvGen, Xicon, NewZap, Monitor, JOBS, DiskX, FixHUNK2, Undelete, Xcopy, more.

CC #409 - C Demos I. A disk filled with source code and compiled programs for the beginner or advanced C programmer.

CC #410 - C Demos II. Another disk for the C language learner, user, or expert.

CC #411 - Demos and Thingies. If you liked Boing! you will love this disk filled with dozens of little demos and graphics toys, also dozens of pointer icons plus over 5 dozen scenarios for Flight Simulator II.

CC #503 - Music Studio. 2 Dozen songs for Music Studio. (Music Studio required.)

CC #507 - MIDI I. A disk with nothing but MIDI stuff. From plans to building a MIDI interface to patches for CZ synths. Includes MIDIUtil. MIDI2, PANL1.2, CZ101, CZL, more.

CC #508 - DMCS I. Over 40 songs for DeluxeMusic. (DeluxeMusic required.)

CC #515 - Perfect Sound Effects I. 40 sound effects recorded with Perfect Sound all in IFF format, includes shareware version of Perfect Sound program to play and edit sounds.

CC #602 - DPaint Slideshow I. 30 DPaint pictures with auto-run slideshow. (DPaint not required.)

CC #614 - Juggler animation. Famous ray-traced animated clown juggling three mirrored spheres.

Remember, most of these are public domain programs, contributed freely to the Amiga community. Some are "shareware" programs for which the authors ask contributions if you feel the program is good enough. There are no guarantees about the quality, usefulness, or results you might get with any particular program. If the disk is faulty, return it for a replacement.

Allow two to four weeks for delivery.

If you have programs you would like to contribute to AWPDL, we will do everything possible to see they get into the public domain.

Send check or money order to: AWPDL, 80 Elm St., Peterborough, NH 03458

Name: ______________________

Address: ______________________

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X $8.00 ($7 + $1 P&H) $ ______

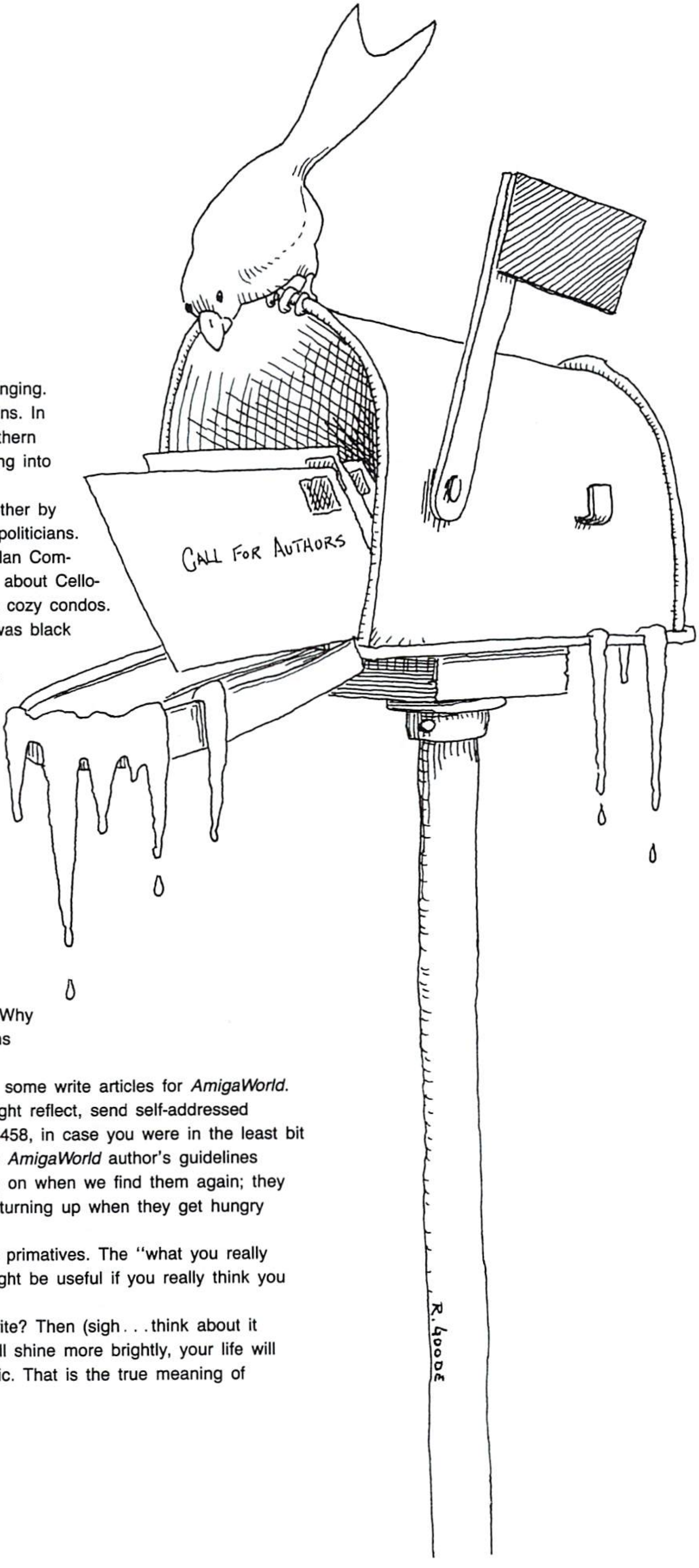
PD catalog pack ($2) $ ______

Total $ ______

AWPDL disks ordered ______ , ______ , ______ , ______ , ______

______ , ______ , ______ , ______ , ______

Call for Authors



Yes, it is spring again. The birds are shining, the sun is singing. The frosts are melting into flowers, showers, lambs and lions. In the deep souths it is hard to tell the difference. In the northern climes the last dirty drifts at the side of the road are sinking into mud.

Somehow we have all managed to survive the winter. Either by pulling up the down comforters or trailing after zephyrous politicians. The uppier Amiga owners have started hanging up their Elan Comprexes, Descente togs and L.L. Beanerie. Fading thoughts about Cellophane crackling around pseudo-yules on plaster hearths in cozy condos. The only bracing or wintery chill for these few fortunates was black Monday and the YSL apre-shave splash.

Others, with lesser amounts of expendable income, beat the cold with libation, lust or dreaming. And some of the more fanatic curled up around an Amiga all winter. Trying to keep numb fingers unkinked with fast and frubrious keyboarding.

"Computers run faster in the cold" must have been muttered through steam clouds around kitchen tables food-stark and power-strip weary.

"But will it pay for the rate hikes, nukes and import tariffs?" asked spouses (should that be spice?). "Will all this digi-watching, Bob and Ray tracing, cursoring, swearing and mousing about raise our standards of living? Will data-debasing, fast and hard disking, cheezespread sheeting and wordysom processing bring us any closer to Nirvana? What is it worth? Where does it lead? Why don't you come to bed anymore? And double clicking icons doesn't work on real trash."

Some shrug, some sigh, some argue, some resign, and some write articles for *AmigaWorld*.

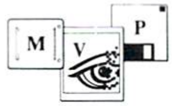
Of course, those who know more than their incomes might reflect, send self-addressed stamped envelopes first (80 Elm St., Peterborough, NH 03458, in case you were in the least bit curious) for their personal copy of the official, authoritative *AmigaWorld* author's guidelines (which may or may not be sent out post haste, depending on when we find them again; they were lost sometime during the last shuffle, but should be turning up when they get hungry enough).

They are pretty dry reading, actually, but they cover the primatives. The "what you really should know abouts" and "be sure tos" and stuff that might be useful if you really think you have a prayer.

But what if it really works? What if we buy what you write? Then (sigh . . . think about it for a moment), the summer of your Amigahooded days will shine more brightly, your life will be hotter, your tan deeper, and your vacations more scenic. That is the true meaning of life . . . or not.

The Pull-Down Menu

designers *artists*



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*4 color separations!!!
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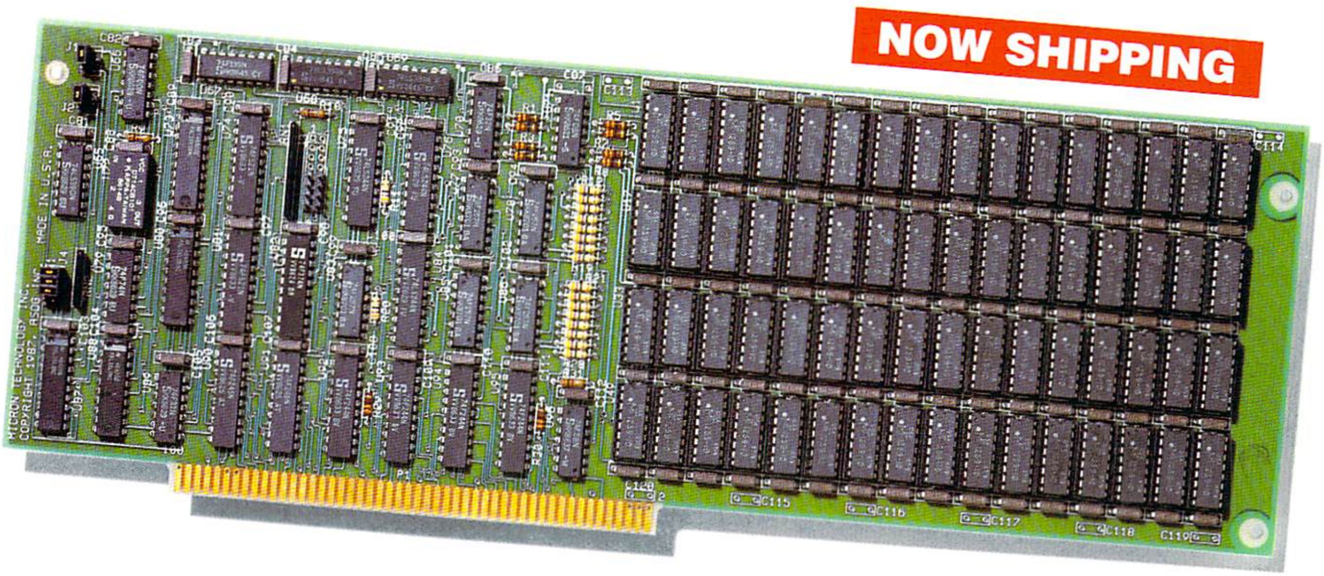

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